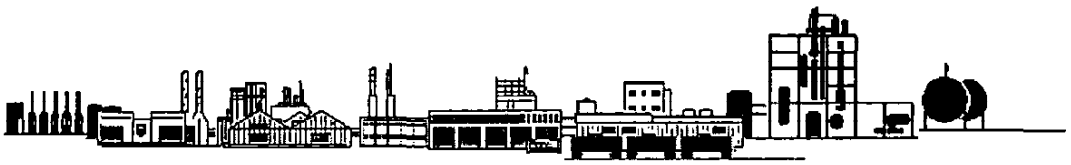
Chevron Oronite



CHEVRON ORONITE COMPANY, LLC
OAK POINT PLANT
BELLE CHASSE, LOUISIANA

SOLID WASTE
GROUNDWATER SAMPLING PLAN
June 2007

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1.0 INTRODUCTION

This "Groundwater Sampling Plan" is constructed primarily as a guide to conduct groundwater sampling events at Oak Point. It does not specifically replace existing groundwater sampling documents but is intended to supplement them and to present a more detailed plan for conducting the events at the Oak Point facility. This plan is prepared in accordance with the Louisiana Administrative Code (LAC) 33:V.3305, LAC 33:V.3315.D (Hazardous Waste Regulations requirements) and LAC 33:VII.709.E.2 (Solid Waste Regulation requirements). Techniques are described that should be used to collect groundwater samples from monitor wells.

New technology developments in sampling techniques and analytical methods for the environmental industry continue to occur. Such changes in this industry require that a Sampling and Analysis Plan (SAP) be flexible enough to adopt new technologies. This SAP intentionally allows for the subsequent integration of new technologies and/or procedures which are environmentally sound and accepted by the environmental industry and regulatory community. These advancements can be readily incorporated into the document without requiring significant modifications to the text.

2.0 GROUNDWATER SAMPLING AND FIELD MEASUREMENTS

2.1 Groundwater Sampling

Prior to actually entering into the field to conduct a groundwater monitoring and sampling program the proper equipment and supplies need to be collected and inspected to make certain that everything is in good working order. As an aid, a "Groundwater Monitoring Checklist," is included (see Figure 1).

The importance of following proper procedures for sampling of monitor wells can not be overemphasized. Even though the well being sampled may be correctly located and constructed, special precautions must be taken to ensure that the sample taken from that well is representative of the ground water at that location and that the sample is neither altered nor contaminated by the sampling and handling procedure.

Groundwater sampling may be contracted out, not only for convenience but for expertise, economics or credibility. Oak Point has elected to use their own personnel for sampling. This does not mean that any lesser standards apply to ourselves than to contractors. All documentation, data retention, QA/QC records and use of approved methods apply to any work that we do.

We must not assume that one sampling interval of good data guarantees that future results will be equally good. The QA/QC program must be ongoing and not be just an integral part of each sampling period.

To obtain a representative sample of the ground water it must be understood that the composition of the water within the well casing and in close proximity to the well is probably not representative of the overall ground water quality at that sampling site. This is because the well is disturbed by the physical act of sampling it, as-well-as important environmental conditions, such as the oxidation-reduction potential, which may differ drastically near the well from the conditions in the surrounding water bearing materials. It is highly desirable that a well be pumped or bailed until the well is thoroughly flushed of standing water (no water is stored in the casing) and contains fresh water from the aquifer. For Oak Point's operations the volume that has to be removed has been determined to be a minimum of three well volumes or until the well is dry, whichever comes first.

In situ dedicated well pumps are not presently used at Oak Point for monitor well purposes. It is possible to pump a minimum amount of water with a dedicated system using Micro Purging. Only a small amount of water is pumped prior to sampling. The standing water above the screen is not disturbed, only formation water is pumped as sampling is done in the "screened" area where groundwater flows through the casing. If this is to be used it needs to be cleared with the state agencies.

The temperature, pH, and conductivity (possibly other field parameters) of the water need to be monitored when pumping (bailing) until stable conditions can be demonstrated. When these parameters stabilize it is probable that little or no water from casing storage is being pumped.

Specific procedures are outlined in subsequent sections that are to be followed during collection of groundwater samples. These procedures have been developed to ensure that representative samples are collected and that the integrity of the samples are maintained until their custody has been relinquished. It is important that the same sampling protocol be followed each time -- changes in protocol can change the sample composition. The sample schedule is currently twice per year, at approximate six months intervals, (not all wells are sampled twice per year).

It is desirable to maintain both a bound field log book and individual sampling sheets (see Figure 2, "Water Sampling Logs", an electronic note pad may also be used. The log book is used to record the daily activities and forms a master data set as it is in a bound log book. This book should contain the necessary information to identify the samples with pertinent field information and data in case there is a future question as to what sample is what. This book may be used as a reference to determine sampling order, etc. Each page needs to be initialed and dated. If any corrections or alterations are made in the book these need to be initialed. Field instrument calibrations need to be entered in the log book.

The actual sampling interval will be hectic; it is also difficult to set aside the two weeks needed to do the sampling. As much data as possible should be recorded ahead of time in the Field Log Book, on the sample bottles, and on the data sheets. Information on the data sheets should include the pumping characteristics of the wells, as well as the elevations, etc. The data derived from the sampling interval is used in various reports. The reports are structured in such a manner that the sampling of the wells should be done in specified sets; it is important and needs to be carefully adhered to whenever possible. Within each sampling group the sampling needs to be done from the least contaminated well to the most contaminated. This means that the upgradient wells should be sampled first. Each well is visited twice; once for depth measurements and once for sampling—the depth measurements are taken first. This needs to be done in one day if possible. If this is not possible the two main data sets should be sampled on separate days—the 30 foot zone and the Upper Clay zone.

A preprinted form for sampling such as Figure 2, "Water Sampling Logs," will be completed and must contain all information necessary to identify samples, and in general, enable one to reconstruct the sampling event in some detail. There needs to be one copy of the form for each well.

2.2 Monitor Well Preparation

Upon arrival at a monitor well, the "Inspection of Groundwater Monitor Wells," checklist included as Figure 3 will be completed. Following completion of this form, or concurrently, if two or more persons are sampling, the well cap will be removed and the water level allowed to stabilize under atmospheric pressure. Record on the form, if you can determine if the well was under a vacuum or positive pressure, or that it has been artesianing. If only water depth soundings are to be taken at this time no other well preparations are necessary. If sampling is to be done, plastic sheeting will be placed around the well to prevent possible groundwater or equipment contamination. It may also be possible to use a portable table as a work surface to isolate the sampling equipment from the well surroundings. The order of monitor well sampling should be from the least to the most contaminated, which in most cases will be from upgradient to downgradient. It is also convenient for subsequent analysis and report writing if the sampling event is broken down into well groups that correlate with the wells contained in the various reports. This reduces the amount of forms and lab reports that must be duplicated in the various reports.

Note: Any activity that has a potential for contaminating the groundwater or samples must be done wearing disposable gloves. This involves: working with pumps; sounding tape probe; measuring of pH, conductivity, temperature, taking samples, etc.

2.3 Water Surface Depth Measurement

The distance from the top of the well casing to the water surface will be measured prior to purging and sampling the monitor wells. This distance can be measured reliably within 0.01 foot

by employing an electronic tape in the following manner. All measurements will be taken from a permanent marked location on the top of the north side of the casing:

- The measuring tape and sensing head should be rinsed with phosphate free detergent solution (or other suitable cleaning agents demonstrated to be environmentally sound) and then rinsed with laboratory-grade purified (DI) water and dried with a clean cloth (paper towels) prior to measuring the first well. Unless the tape becomes contaminated it is only necessary that the tape and the sensing head be rinsed with laboratory grade purified water between wells;

- The measuring device (tape) should be slowly lowered down the center of the casing;

- After water is encountered in the well, the tape should be held against the casing on the North side, the reading needs to be recorded in the log book. Successive measurements should always be taken on the North side for subsequent wells.

Note: If a Light Non-Aqueous Phase Liquid (LNAPL) layer is present, measure the depth to the top of the layer and the top of the water layer as well as the total well depth. Record these values but do not sample the well, see section 2.4 below. This measurement needs to be done with an interface measuring tape--don't use the same tape measure that is used in non LNAPL wells. If the tape being used becomes contaminated with LNAPL's it needs to be washed thoroughly with cleaning agents and rinsed with purified water.

- Record the measurement;
- Remove the measuring tape from the well; and
- Calculate the water level elevation relative to mean sea level by subtracting the depth to water level from the top of the casing elevation (this may be done at a later time).

The information pertinent to each well and sampling event will be recorded in the field log book or on a water sampling log such as presented in Figure 2. All wells, if possible, will be measured for depth on the same day and prior to purging and sampling each monitor well. In addition to obtaining the static water elevation, the total depth of the well will also be measured. Sounding the well will help determine if silt has accumulated at the bottom of the well—if it has record it in the log book and/or on the forms.

2.4 Detection of Immiscible Layers

Determining the thickness of an immiscible organic layer, or a Light Non-Aqueous Phase Liquid (LNAPL) should it be necessary, is accomplished by two separate measurements: depth-to-water and depth-to-hydrocarbon, the difference between the two being the thickness of the immiscible layer. The measurements need to be made with an electronic interface probe used only for this type of measurement. The water level will be determined, when LNAPL is present, by submerging the probe into the air/LNAPL interface and subsequently into the LNAPL/water

interface and recording the depth of the interfaces. The probe will emit different sounds for these two interfaces.

Note: Be sure to clean the tape and probe adequately with soap and decontaminate it with laboratory grade water. It is not always easy to take this measurement; some skill may need to be developed.

The correction for LNAPL levels, made in order to establish the potentiometric water surface, will be performed in the office. Water-table elevations should be calculated to account for the depression of the water surface caused by the mass of hydrocarbon product floating on the water surface. The formula for this determination is:

$$WL(corrected) = TOC - (DTW - [sg \times PT])$$

where, WL - this is the corrected water level to be used in plotting of the potentiometric surface,
TOC - is the elevation of the top of the casing,
DTW - is depth to the top of the water,
sg - equals the specific gravity of the immiscible layer (use a value of 0.75 if no other data is available)
PT - is the measured thickness on the LNAPL layer.

Record the measurements on the well sampling log.

Note: If the immiscible phase must be collected for laboratory analyses, it should be done prior to any purging activity, but after depth measurements.

2.4 Removal of Standing Water in Wells

It is important that work be done in a systematic order -- from the cleanest to the dirtiest well. Wells known to be affected by free oil should be sampled last or not at all.

The water standing in a well may not be representative of the quality of the groundwater requiring evaluation. Therefore, the stagnant water will be removed prior to collection of samples. Monitor wells containing immiscible layers will not normally be sampled in the semiannual or annual sampling events. If micro-purging is used it is not necessary to remove 3 volumes of water, only that amount of water is removed until the field parameters have stabilized.

The recommended volume of water that must be evacuated is three to five well volumes (we normally evacuate three well volumes, some of our wells go dry and three volumes can not be extracted from these wells.) One well volume of water is calculated by using the following formula:

$$V = 7.48\ \Pi\ r^2 h$$

where: V = Volume of standing water (gallons)
r = Radius of well casing (ft)
h = Length of water column in the well (ft)
Π = 3.14
7.48 = Conversion factor

or: $V = 0.0408 D^2 h$

where: V = Volume of standing water (gallons)
D = Diameter of well casing (inches)
h = Length of water column in the well (ft)
0.0408 = a conversion factor (takes into account conversion of inches to feet, pi, water volume conversion, etc.)

The evacuation of stagnant water will be performed by employing a bailer, a peristaltic pump, a submersible centrifugal pump, or other appropriate industry accepted technologies. The purging bailers can be disposable, constructed of PVC, or constructed/coated with Teflon®. If a pump is used, completely decontaminated tubing made of flexible, chemically resistant material needs to be used for extraction of the water. Teflon®, Tygon, or PVC flexible tubing is recommended when pumps are utilized. Oak Point uses PVC tubing and disposes of it after purging/sampling each well. The materials of construction for submersible centrifugal pumps should be stainless steel with Teflon® internals. Bailing the well is acceptable: however, if a bailer is employed, extreme care needs to be taken in lowering the bailer into the well to avoid "surging" the water in the casing, which could disturb the formation deposits (i.e., silts) at the bottom of the well.

Note: When purging a well with a pump it may be necessary to raise the pump a few inches periodically if the well has a layer of soft sediments in the bottom. The pump may get impacted with the sediments and stop pumping. This could burn the pump up. Ideally the pump (intake) should be located mid-screen to increase the likely-hood that samples are taken from the formation that is screened.

Wells that recharge slowly (i.e., those not filled back to the static level within eight hours) should be purged completely at least once and then sampled after the water level has recovered enough to sample.

Note: This is a field decision; there are those wells that refill so slowly that it may not be possible to allow them enough time to refill. Sample these as soon as enough water has entered to allow a suite of samples to be taken. It may be necessary to take the samples a little at a time. This should be noted in the log book.

Purged water is disposed of in our storm water system inside the plant. When sampling in a remote location or outside of the plant, containerize the purged water and bring the containers to a place in the plant where they may be discharged into the storm water system.

Deciding when the required volume of water has been purged from the well can be determined by directly measuring the amount discharged into a container of known volume or by measuring the time of pumping with a calibrated pump. A purge pump may be calibrated for each use (i.e., the pumping rate may be determined) by pumping at a constant flow rate and measuring the time required to fill a container of known volume. Once the required volume to be purged and the pumping rate are known, the time necessary to pump the required amount of water may be calculated by the formula:

$$T = V/R$$

where: T = Time (minutes)
V = Volume of standing water (gallons)
R = Rate of flow (gallons/minute)

However, the amount of time necessary to purge a well is of little value as the pumping rate will rarely be the same from well to well or time to time. The primary concern is well volume and volume of water pumped and not the rate--it is assumed that the pumping rate will be kept at a reasonable low level.

Field water sample logs or record sheets (see Figure 2) have a table of well bore volumes per linear foot for various well sizes to allow calculation of well volumes in the field.

Prior to purging, an initial small groundwater sample will be collected for field measurements such as; pH, specific conductance, and temperature. Subsequent field measurements will be collected after each purged well volume and after sample collection.

NOTE: Make certain that field meters are calibrated before and after use. This should be done daily or more often if there is a need, such as a large ambient temperature change during the day.

If there is insufficient volume to allow for three purges take an initial, intermediate and an after sampling reading.

2.5 Collection of Groundwater Samples

Prior to collection of groundwater samples, the monitor wells must be allowed to recharge sufficiently to supply the necessary volumes of water. In the event that pumping devices are employed to collect groundwater samples, the flow rate of the pump will be set as low as practically achievable. A fast rate may alter the test results.

During the sample withdrawal process, care must be taken to minimize altering the sample chemically or physically. The bailers or pumps must also be prevented from contacting any material other than the groundwater prior to sample collection. Disposable gloves must be worn during handling of the sampling equipment.

Transferring of the water from the bailer or by use of a submersible pump and tubing into the bottles must be performed maintaining the integrity of the sample. Agitation of the sample during collection and displacement must be avoided to limit the amount of oxygen added to the sample. Don't aerate the sample during sampling. The order in which the sample containers are filled must be selected considering the volatilization tendency of the parameters. This especially affects Benzene, Toluene, Xylene, Ethylbenzene, and Chlorobenzene. Samples that require the analysis of volatile organics must be collected first. Transferring of the sample must be accomplished by placing the bailer or tubing as close as possible to the container to diminish aeration of the water. The bailer or tubing must not touch the containers to avoid cross contamination between sampling bottles or neutralization of preservatives.

2.5.1 Special Handling of Samples

Samples requiring analysis for organic constituents should not be filtered. Samples should not be transferred from one container to another because losses of organic material onto the walls of the container or aeration may occur. For volatile samples no headspace should exist in the sample containers (vials with zero headspace, use flexible Teflon™ lined caps) to minimize the possibility of volatilization of organics. Fill the bottle by allowing the sample to run down the inner side of the vial until it is completely full and the water is mounding. After filling, invert the vial and tap the container to be sure there are no bubbles. Allow a short but sufficient time while the vial is inverted for small bubbles to coalesce into a single large bubble. If there are bubbles, remove the cap, fill it, and repeat the procedure. If bubbles persist, the vial may be defective.

Note: Never remove the Teflon™ lining from the cap used to seal the bottle because any natural oil from the skin that adheres to the liner might be detected in the laboratory analysis

Unless specified prior to sample collection, groundwater samples will not be filtered in the field for metals analyses.

2.5.2 Procedures for Sample Preservation and Shipment

Many of the chemical constituents and physicochemical parameters that need to be measured in groundwater monitoring are unstable, sample preservation is required. The commercial laboratory selected for the analyses of the samples provides the necessary containers and preservatives. Generally, the laboratory provides pre-preserved containers; however, it is the responsibility of the sampling team to ensure that the correct container and preservative have been used for the constituents requested for analyses. After collection of samples, the containers

will be properly labeled and placed in a portable ice cooler and maintained at 4°C. Sample labels are necessary to identify and prevent misidentification of the samples. The labels should be affixed to the sample containers prior to the time of sampling. The labels will be completed at the time of collection. The labels will include the following information:

- Sample Identification (this includes a sample number and may include a bottle number--Oak Point generally uses the well name),
- Initials of the Collector(s),
- Date and Time of Collection,
- Place of Collection,
- Analysis to be Performed, and
- Preservative.

Preprinted labels are suggested. These labels need to contain as much well and sample specific information as possible. A minimum of well site effort should be required to complete each label.

A listing of the wells to be sampled, listed in the order to be sampled is helpful. This should have each well's pumping characteristics listed.

2.6 Procedures for Decontamination

Decontamination procedures and techniques have been developed to minimize the transfer of contaminants into the groundwater samples. Appropriate decontamination techniques and procedures have been selected which are compatible with the sampling equipment. Decontaminated bottles and containers used for collection of samples are provided by the contracting laboratory.

2.6.1 Dedicated Bailers

1. Wash sampling equipment thoroughly with laboratory grade, phosphate free detergent and water using a brush (if necessary) to remove any particulate matter or surface film.
2. Rinse equipment thoroughly with laboratory-grade, purified water three times.
3. Wrap with, or in, a suitable material, such as plastic, to minimize exposure to the environment until the equipment is used.

2.6.2 Portable Pumps

Portable pumps used to collect groundwater samples shall be precleaned as described in Section 2.6.1. prior to use in monitor wells.

2.6.3 Teflon™, Tygon™, or PVC Tubing Used with Pumps

Teflon™, Tygon™, or PVC pump tubing need not be replaced in pumps where the sample does not contact the tubing or where the pump is being used for purging purposes (i.e., not being used to collect samples). Tubing shall be pre-cleaned as described in Section 2.6.1. Oak Point has elected to use PVC tubing and discard it after purging/sampling of each well.

2.6.4 Well Sounders or Tapes Used to Measure Groundwater Levels

Equipment used to collect groundwater level measurements shall be precleaned as described in Section 2.6.1. If immiscible layers are encountered, the equipment needs to be washed with phosphate free soap and water; an isopropyl alcohol rinse may be included, followed by a thorough rinsing with laboratory grade purified water three times. Oak Point uses two separate instruments; one dedicated to wells with an immiscible layer, the other to be used only in "clean" wells.

2.7 Waste Disposal

Expended personal protective equipment (PPE) (booties, gloves, etc.) and disposable sampling equipment (plastic sheeting, tubing, etc) will be placed in plastic garbage bags or other containers once their use is no longer needed. These items are to be placed into trash station drums located in the plant. Material from these trash stations are disposed of at an industrial landfill on ChevronTexaco's "Selected for Use List".

2.8 Quality Control Samples

During each groundwater sampling event conducted at Chevron's Oak Point facility, certain QA/QC samples will be collected. The QA/QC samples include: rinsate blanks, field blanks, trip blanks, and field replicates.

Rinsate blanks are collected as a check on the efficiency of the cleaning procedures for the non-dedicated sampling equipment. A sampler rinsate is collected by placing laboratory-grade purified water in contact with the field sampling apparatus (bailer, pump tubing, etc.) after they have been cleaned. For example, a pump used to sample groundwater is cleaned in accordance with procedures listed, and then laboratory grade purified water is poured contacting

the decontaminated pump. This purified water is captured after contacting the pump in the same type of sample container as the other samples, preserved in the same manner, and analyzed for the parameters of interest. Sampler rinsates are collected at a frequency of at least 1 per 20 groundwater samples, or for each data set or suite--this is a set of wells which are all tested for the same parameters, sampled as a group and are used in a report as a set or group.

Field blanks are collected for the volatile organics (i.e., benzene, toluene, and xylene - these are often termed BTX testing), unless other parameters of interest are specified. A field blank is with laboratory-grade purified water and preserved in the same manner as the samples. It is analyzed along with the samples for the parameters of interest. Field blanks are collected at a frequency of at least 1 per 20 groundwater samples, or for each data set or suite.

A trip blank is generally specific to volatile organics analysis and is required at the frequency of one per volatile sample cooler. A trip blank is a vial filled, in the laboratory that is doing the testing on the samples, with organic-free water, that travels unopened with the sample bottles. If the sample cooler does not contain groundwater collected for volatile organic analyses, then no trip blank is required for that cooler.

Note: It is desirable that all of the volatile organic samples be placed in the same cooler each day.

In addition, a replicate sample (or duplicate) prepared from the same aliquot as the original sample must be submitted to the laboratory at a frequency of at least 1 per 20 sample matrix or for each data set or suite. Both the replicate and the original sample are collected at the same time, in the same type container, preserved the same and are analyzed by the same laboratory. Replicate samples must be collected and analyzed for all the parameters of interest in a sampling event. It is desirable that these be labeled with a dummy well ID as the laboratory does not need to know that they are duplicates.

3.0 SAMPLE CUSTODY

Samples will be maintained in the custody of the sampling personnel until shipment or personal delivery of containers is performed. Upon transfer of the groundwater samples, the chain-of-custody form will be completed and signed by the sampling personnel. If a common carrier such as Federal Express, Airborne, etc. is used for transferring of samples, the chain-of-custody form (see Figure 4) will be placed in a plastic bag inside the cooler, since most common carrier's employees are not allowed to sign chain-of-custody forms.

The chain-of-custody form must be signed and returned by the laboratory no later than the date the final analytical results are available. If the samples are delivered in person by the sampling personnel or picked up by a laboratory employee, the chain-of-custody must be signed by the laboratory representative immediately upon relinquishment of the samples by the sampling personnel. The copy of the completed chain of custody form must be retained by the sampling

personnel and the original is kept with the samples. In some cases, the chain-of-custody form that has been provided by the laboratory with the containers may be used.

The Chain of Custody form will contain the following information (an example of a form is attached, Figure 4):

- Sample number and number of containers per well,
- Signature (Initials) of the collector,
- Date and time of collection,
- Signatures (Initials) of persons involved in chain of possession,
- Place and address of collection,
- Waste type (groundwater), and
- Inclusive dates of possession.

4.0 ANALYTICAL PROCEDURES

4.1 Procedures for Laboratory Analyses

The laboratory procedures, detection limits, container type, preservative required, hold time, and volume required for analyses of indicator parameters and site-specific constituents in groundwater collected from the monitoring are presented in Table 1, these will be updated periodically. All parameters requiring testing that are not tested in the field will be analyzed at a certified laboratory accredited under the LADEQ accreditation program (reference LAC 33.I.Chapter 45).

4.2 Procedures for Field Analyses

Analyses of pH, temperature, and specific conductance will be performed in the field at the time of sampling. These properties change rapidly over time and a laboratory analysis might not be representative of the groundwater quality. The groundwater samples that will be collected for field analyses will be placed in disposable cups or precleaned containers. Sufficient sample volume will be collected to analyze the parameters with original groundwater discarding the sample between tests. Analysis of pH, temperature, and specific conductance will be performed in accordance with the instrument operating instructions.

4.3 pH Measurements

The most convenient method to determine the pH of the groundwater in the field is by using a pH meter that employs a glass or plastic reference electrode. Prior to analysis of pH, the probe will be inspected for cracks that might have occurred during transportation. In addition, the probe will be checked to ensure it is clean and filled with electrolyte solution. The procedures described below will be followed for the calibration and field measurement for pH:

- To calibrate the instrument, place the probe in the 7.00 standard units buffer solution.

Note: Check the temperature of the solution; make certain that the temperature knobs are set correctly.

- Stir the buffer solution slightly by moving the probe in a circular motion until the reading remains constant.
- Adjust the reading to 7.00 by turning the appropriate knob or screw.
- Remove the probe from the 7.00 standard units buffer solution and rinse it with deionized water. Place the probe in the 4.00 standard units buffer solution. The instrument should read 4.00, if is not exactly 4.00, adjust the calibration knob until the instrument reads exactly 4.00. Rinse the probe with deionized water prior to placing it in the sample.
- It may be necessary to repeat the above a few times as this is an iterative procedure.
- Once calibrated, place the probe in the sample and read the pH.
- The probe must be thoroughly rinsed prior to further sampling and recalibrated if necessary per manufacturer's instructions. All calibrations are to be recorded in the field log.

4.4 Specific Conductance Measurements

A portable meter is used for measurement of specific conductance. Upon arrival at the site, the instrument will be inspected for possible damage that might have occurred during transportation. The instrument needs to be calibrated for conductance prior to its being used. A standard solution with known conductance is available. The measurement of specific conductance must be performed as follows:

- Rinse the conductivity well (cup) with deionized water.

- Pour the standard solution into the conductivity sample well. Shake to dislodge air bubbles.

- Set the appropriate knob or calibration adjustment so that the instrument reads the correct specific conductance.

- After calibration, dispose of the standard solution in the well probe and thoroughly rinse with deionized water prior to placing the sample in the well.

- Pour an adequate amount of the sample to be measured into the sample well and read the value directly from the instrument.

4.5 Temperature Measurements

A portable meter is used for measurement of temperature. Upon arrival at the site, the instrument will be inspected for possible damage that might have occurred during transportation. The measurement of temperature is similar to specific conductance and must be performed as follows:

- Rinse the conductivity/temperature well (cup) with deionized water.

- Check the appropriate temperature knob to be certain that it is set at the correct temperature.

- Using the same sample as for conductivity read the value directly from the instrument.

5.0 MONITOR WELL INSTALLATION, PLUG and ABANDONMENT, MAJOR REPAIR or REWORK

It is required that proper concurrence is received from the regulating bodies prior to doing any well installation, plug and abandonment, major repair, or rework. Procedures outlined in Construction of Geotechnical Boreholes and Groundwater Monitoring Systems Handbook produced by LDEQ and DOTD must be followed. Following is brief listing of who must be contacted, specific individuals and addresses are not listed as these change from time-to-time:

- Plaquemines Parish Government—a construction work permit is required, this entails paying a fee. Need to allow as much time as possible to get this done as this is not a fast procedure. Work can proceed on a verbal approval. However, through notes should be taken on procedures followed when proceeding under verbal approval.

- US Army Corps of Engineers — They need only be consulted if the well is within 1500 feet of the center line of the Mississippi levee. Wells within 250 feet of the levee are of special concern as they may be flowing wells. Wells may only be installed when the level of the river is below +11 feet.

- Department of Transportation — If the well is located on a highway right-of-way they must be notified. The state agency in Baton Rouge needs to be notified and a construction permit must be gotten from the regional office in Bridge City.

- Louisiana Department of Environmental Quality — This department must be notified of any work concerning the monitor wells other than normal maintenance. *This is particularly true for the RCRA based monitoring system. If a permit modification needs to be addressed, a request must be made to the LDEQ.* The state office in Baton Rouge needs to be notified and copies sent to the Kenner office.

6.0 HEALTH AND SAFETY PLAN

6.1 Introduction

6.1.1 Purpose

This Health and Safety Plan (HASP) addresses the health and safety practices that will be employed by all site workers participating in the groundwater monitoring activities at Chevron Oronite Oak Point Plant.

Activities performed under this Health and Safety Plan will comply with applicable parts of OSHA Regulations and since Chevron Oronite Company, LLC, Oak Point Plant employees perform the groundwater monitoring events at this facility, these Plant Instructions are the guidelines for the Health and Safety Program used during groundwater monitoring:

- PI-012, General Instructions for Employees
- PI-250, Waste Management Reviews
- PI-308, General Safe Work Permit
- PI-703, Environmental, Health and Safety Item Procedures
- PI-707, Employee Safety and Environmental Procedures

- PI-714, Personal Protective Equipment
- PI-717, Preventing Water Pollution
- PI-722, Hearing Protection
- PI-727, Fire Retardant Clothing Program
- PI-729, Access and Egress Into a Process Area

6.1.2 Scope

The site activities will consist of the determination of water level measurements and collection of groundwater samples.

This HASP addresses the following:

- Gauging water level measurements of monitor wells
- Collection of groundwater samples from monitor wells
- Sample preservation and shipping
- Decontamination of equipment

FIGURE 1- GROUNDWATER MONITORING CHECKLIST

_____Make arrangements for sample pickup

_____Make certain that the lab provides the sample bottles with preservatives

_____Need enough ice chests to hold the days samples

_____Two vehicles needed -- one pickup and one van; need to have cigarette lighter receptacle working for pump backup use.

_____Chain of custody forms

_____Labels

_____Plastic bags for forms, etc.

_____Plastic bags for trash, etc.

_____Security seals for bottles and or ice chests.

_____Paper towels

_____Duct tape

_____Clear tape, two inches wide for use on sample bottles

_____Pens, permanent markers, indelible ink pens

_____Plastic tie bands - various sizes

_____Ice daily

_____DI squirt bottle, clearly marked

_____Kim wipes, or equivalent

_____Non-powdered (PVC?) gloves

_____Plastic roll for ground cover

_____Pump, et. al., also need peristaltic pump for 1-1/4" wells

_____Power source for pump - charged, must be done the day before sampling.

_____Extension cords, splitter (if required for pump operations)

_____pH meter, buffer solutions (check expiration dates)

_____Conductivity standard, current

_____Umbrella

_____Wrenches, screwdrivers, and fittings

_____Trip blanks, make certain that the lab ships these to us

_____Depth sounder, for determining well-water depth

_____Depth sounder, for measuring LNAPL's

_____FRC

_____Safety glasses

_____Rain gear

_____Rubber boots, if needed

_____Knife

_____Field book for notes (bound, use same one from sample event to sample event)

_____Clipboards

_____Bungee cords/tie-downs

_____List of parameters/preservatives/sequence

_____Scissors

_____5 gallon buckets (at least four)

_____Large plastic barrels for waste water

_____Basic first aid kit

_____Portable Table

_____Plastic Sheeting

_____Phosphate Free Detergent

_____Isopropyl Alcohol

FIGURE 2- WATER SAMPLING LOGS

WATER SAMPLING LOGS

Sampling Event: _____ Well No: _____ Date: _____

Weather: _____ Sampling Time: Began: _____ Completed _____

EVACUATION DATA Measuring Point (MP) Description: _____

MP Elevation (ft): _____ Gallons to pump/Bail (3V): _____

Sounded Depth of Below MP (ft): _____ Gallons pumped before sampling: _____

Depth to Water Below MP (ft): _____ Gallons per Foot: _____

Water Level Elevation (ft): _____ Diameter of Casing in inches: _____

Water Column in Well (ft): _____ Gallons of Water in Well: _____

(0.0519 ¶ r^2 h = V, r in inches, h in feet

SAMPLING DATA/FIELD PARAMETERS or V = 0.0408D^2h, D in inches, h in feet)

Color: _____ Appearance: _____ Odor: _____

Sampling Method and Material: _____

Monitor Well Inspection

Date: Time:

Note deficiencies found, according to monitor well checklist, while inspecting wells during gauging:

Samplers	Test Parameter	Initial Reading	1st Well Volume	2nd Well Volume	3rd Well Volume	Final Reading
	pH (s.u.)					
	Conductance (umhos/cm)					
	Temperature (°F)					
	Temperature (°C)					
WELL CASING VOLUMES GAL./FT.		1-1/4" = 0.064		2.0" = .163		4.0" = 0.652

Remarks: _____

FIGURE 3- INSPECTION CHECK LIST

CHEVRON ORONITE COMPANY
BELLE CHASSE, LOUISIANA
INSPECTION OF GROUNDWATER MONITOR WELLS

Inspect each monitor well for the items below while gauging for water level measurements. Note any deficiencies in section on "Water Sampling Log"

INSPECTION CHECK LIST

1 Is well accessible?	yes	no	n/a
- Is grass cut?	yes	no	n/a
- Are weeds cut?	yes	no	n/a
- Visible wasp nest?	no	yes	n/a
2 Is well identification number visible?	yes	no	n/a
3 Are guard posts inplace and undamaged?	yes	no	n/a
4 Is concrete slab in good shape?	yes	no	n/a
5 Is casing pipe protective cover in good shape?	yes	no	n/a
6 Are protective covers and guard posts painted?	yes	no	n/a
7 Is protective cover locked?	yes	no	n/a
8 Does protective cover open?	yes	no	n/a
9 Inside of protective cover free of insects?	yes	no	n/a
10 Does casing pipe have a drain plug?	yes	no	n/a
11 Casing pipe free of accumulated water?	yes	no	n/a
12 Does risor pipe have dust cover (cap)?	yes	no	n/a
13 Is risor pipe undamaged?	yes	no	n/a
14 Any evidence of tampering?	no	yes	n/a

FIGURE 4 – CHAIN OF CUSTODY

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company:	Report To:	Attention:
Address:	Copy To:	Company Name:
		Address:
Email To:	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name:	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

Page: of

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

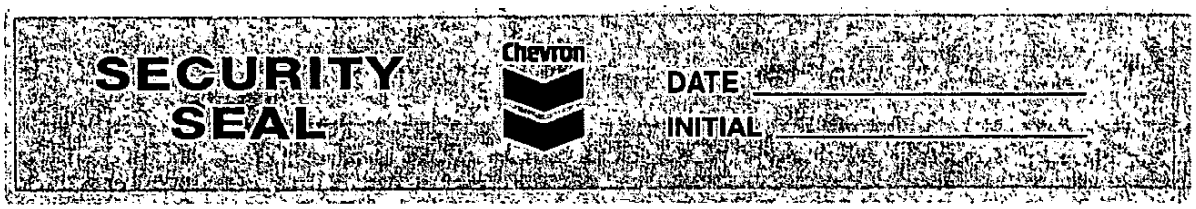
Requested Analysis Filtered (Y/N)

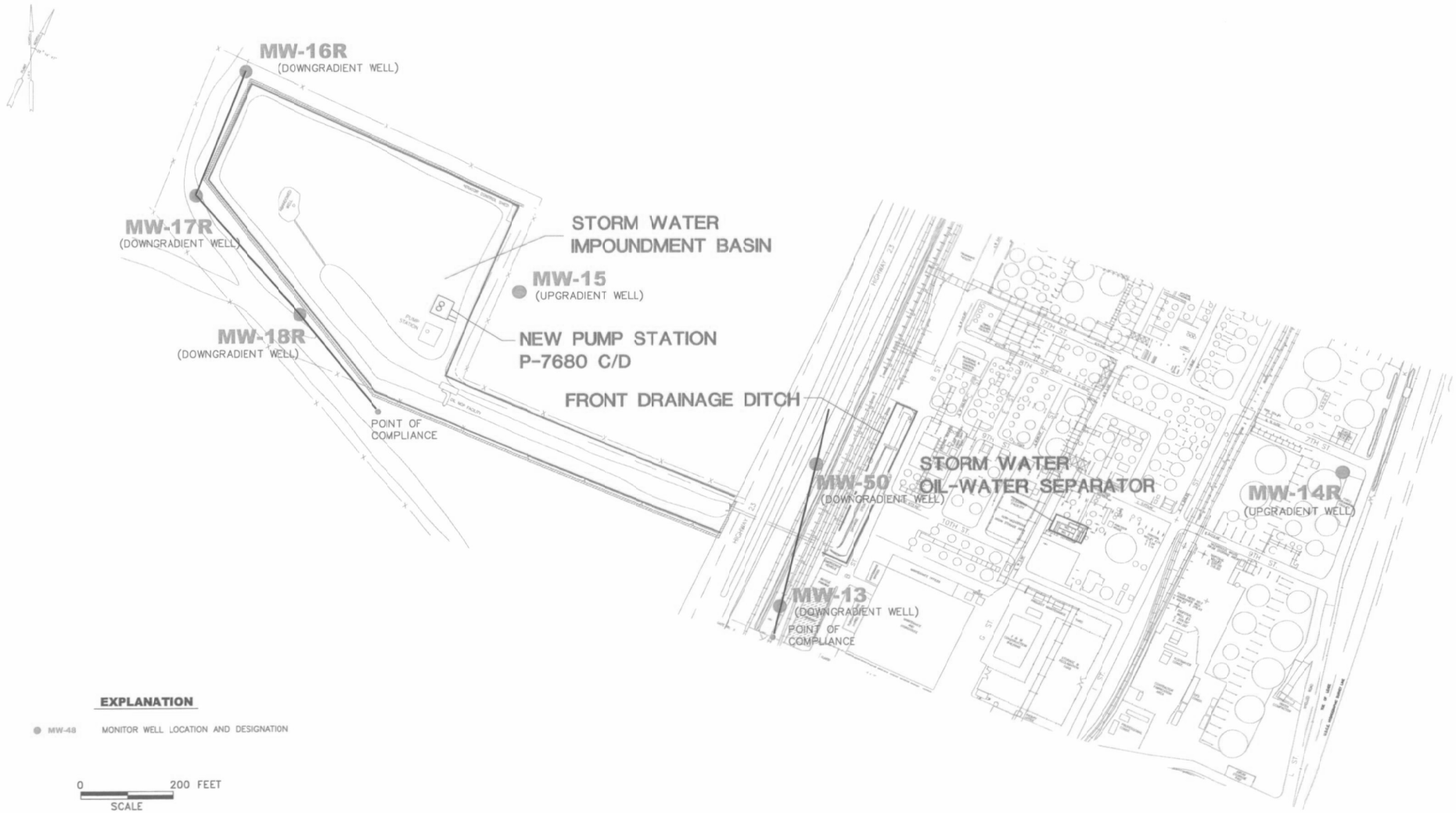
ITEM #	Section D Required Client Information SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Valid Matrix Codes MATRIX / CODE DRINKING WATER DW WT WATER WW WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE ENDDAM DATE	COLLECTED: COMPOSITE ENDDAM TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	Preservatives: H_2SO_4	Preservatives: HNO_3	Preservatives: HCl	Preservatives: NaOH	Preservatives: $Na_2S_2O_3$	Preservatives: Methanol	Preservatives: Other	Y/N	Analysis Test												Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1																															
2																															
3																															
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:					
SIGNATURE of SAMPLER:	DATE Signed (MM/DD/YY):				

FIGURE 5 – CUSTODY SEAL





	REV. ISSUED DATE DESCRIPTION	KEYPLAN	ARCADIS 10352 PLAZA AMERICANA DRIVE BATON ROUGE, LA 70816 TEL: 225-292-1004 FAX: 225-218-9677 WWW.ARCADIS-US.COM	SITE LAYOUT	DRAWN BY S. MEN / CHECKED C. DEROEUN; SHEET TITLE: CHEVRON ORONITE COMPANY, LLC OAK POINT PLANT Belle Chasse, Louisiana	PROJECT MANAGER D. ESCUDE' / DEPARTMENT MANAGER D. ESCUDE'; TASK/PHASE NUMBER 0001 / DATE 2006; PROJECT NUMBER LA002582.0002 / DRAWING NUMBER 6

User Name : smen Path\Name : G:\APROJECT\CHEVRON\LA002582.0002\Figures\2582-02-06.dwg

TABLE 1- MONITOR WELL NETWORK

Well Name	Associated Unit	Well Type	Zone Screened	Parameters	Sampling Frequency
MW-14R	Solid Waste	Upgradient	30 foot	pH, Specific Conductivity, Temperature, TDS, TOC, GC/MS Phenol, Dissolved Zinc, BTX, VPH/EPH	Semiannual
MW-15	Solid Waste	Upgradient	30 foot	pH, Specific Conductivity, Temperature, TDS, TOC, GC/MS Phenol, Dissolved Zinc, BTX, VPH/EPH	Semiannual
MW-13	Solid Waste	POC	30 foot	pH, Specific Conductivity, Temperature, TDS, TOC, GC/MS Phenol, Dissolved Zinc, BTX, VPH/EPH	Semiannual
MW-50	Solid Waste	POC	30 foot	pH, Specific Conductivity, Temperature, TDS, TOC, GC/MS Phenol, Dissolved Zinc, BTX, VPH/EPH	Semiannual
MW-16R	Solid Waste	POC	30 foot	pH, Specific Conductivity, Temperature, TDS, TOC, GC/MS Phenol, Dissolved Zinc, BTX, VPH/EPH	Semiannual
MW-17R	Solid Waste	POC	30 foot	pH, Specific Conductivity, Temperature, TDS, TOC, GC/MS Phenol, Dissolved Zinc, BTX, VPH/EPH	Semiannual
W-18R	Solid Waste	POC	30 foot	pH, Specific Conductivity, Temperature, TDS, TOC, GC/MS Phenol, Dissolved Zinc, BTX, VPH/EPH	Semiannual

TABLE 2 – GROUNDWATER MONITORING ANALYTICAL INFORMATION

Parameter	Container Type	Preservation Method	Analytical Method[2]	Concentration Limit[3] (ug/L)
Specific Conductivity[1]	Plastic or glass if shipped to lab	None	9050	N/A
pH[1]	Plastic or glass if shipped to lab	Field Measure	9040	N/A
Dissolved Zinc	Plastic	None	SW6010	10
Temperature	N/A	N/A	170.1	N/A
TDS	Plastic	None		
TOC	VOA Vial Glass (amber)	H_2SO_4	415.2	1.0 mg/L
BTX	VOA Vial Glass (Clear)	HCL	8260	0.5
GC/MS Phenol	Amber Glass	None	8270	10
VPH-Aliphatics (C6-C8)	VOA Vial Glass (Clear)	HCL	MADEP	3.2 mg/L
VPH-Aliphatics (>C8-C10)	VOA Vial Glass (Clear)	HCL	MADEP	0.15 mg/L
VPH-Aliphatics (>C10-C12)	VOA Vial Glass (Clear)	HCL	MADEP	0.15 mg/L
VPH-Aliphatics (>C12-C16)	VOA Vial Glass (Clear)	HCL	MADEP	0.15 mg/L
VPH-Aliphatics (>C16-C28)	VOA Vial Glass (Clear)	HCL	MADEP	7.3 mg/L
VPH-Aromatics (>C8-C10)	VOA Vial Glass (Clear)	HCL	MADEP	0.15 mg/L
VPH-Aromatics (>C10-C12)	VOA Vial Glass (Clear)	HCL	MADEP	0.15 mg/L
VPH-Aromatics (>C12-C16)	VOA Vial Glass (Clear)	HCL	MADEP	0.15 mg/L
VPH-Aromatics (>C16-C21)	VOA Vial Glass (Clear)	HCL	MADEP	0.15 mg/L
VPH-Aromatics (>C21-C28)	VOA Vial Glass (Clear)	HCL	MADEP	0.15 mg/L
EPH-Aliphatics (>C6-C8)	Amber Glass	HCL	MADEP	3.2 mg/L
EPH-Aliphatics (>C8-C10)	Amber Glass	HCL	MADEP	0.15 mg/L
EPH-Aliphatics (>C10-C12)	Amber Glass	HCL	MADEP	0.15 mg/L
EPH-Aliphatics (>C12-C16)	Amber Glass	HCL	MADEP	0.15 mg/L
EPH-Aliphatics (>C16-C28)	Amber Glass	HCL	MADEP	7.3 mg/L
EPH-Aromatics (>C8-C10)	Amber Glass	HCL	MADEP	0.15 mg/L
EPH-Aromatics (>C10-C12)	Amber Glass	HCL	MADEP	0.15 mg/L
EPH-Aromatics (>C12-C16)	Amber Glass	HCL	MADEP	0.15 mg/L
EPH-Aromatics (>C16-C21)	Amber Glass	HCL	MADEP	0.15 mg/L
EPH-Aromatics (>C21-C28)	Amber Glass	HCL	MADEP	0.15 mg/L

Appendix Q

Example of an Ecology Area Turnover Report

Utilities & Ecology Turnover 10/31/2005 6:30:00 AM Day Shift

[redacted]rators:

Area	Unit	Start Val	End Val	Measurement
Stream 202	Integrator	108113	290811	(Gal)
Chemical Waste	Integrator	9070929	9108466	(Gal)
ST 202	Flow To River	903	893	(GPM)
Basin	Basin Level/# of Aerators	4.0//4 AER		(Level / #)
	Phenol	.008		(PPM)
	TOC	32		(50 Max)
	TSS	26		(106 Max)
ST 202	Oil & Grease			(PPM)
	pH from AI 4325	7.1	7.1	(pH)
	Grab Sample pH	7.0		(pH)
	TOC	125		(100 Max)
K7675/Forebay	Phenol	0		(PPM)
	Ph	7.1		(Ph Level)
K7625	Out TOC	939		(2500 Max)

Weekly ST202 Composite / Oil & Grease Samples/Pace:

Area	Unit	Start Val	End Val	Measurement
Comp 1/ [redacted] ST 202	Comp Tag #			(Sample #)
	Oil & Grease Tag #			(Sample #)
	Composite Pace			(OK/NR) 1st Monday of the Month
	Pace BOD Special			(OK/NR) Every Wednesday

T7645 Pace Samples:

Area	Unit	Start Val	End Val	Measurement
T7645	Pace			(OK/NR) 1st Thursday of the Month
	Pace			(OK/NR) Every Thursday

Storm Water System / Outside Inspection:

Area	Unit	Start Val	End Val	Measurement
K7675	Oil Belts Running/Working?	YES		(Y/N)
Composite Sampler	On / Clean Temperature In range?	YES / 39		(Y/N)
K7624	Tote Bin Level	OK		(%)
	Polymer Feed Rate	40		(ML/Min)

Chemical Waste System / Outside Readings:

Area	Unit	Start Val	End Val	Measurement
T7620	Did you Skim?	YES		(Y/N)
	# of Times	CONT		(# of Times)
[redacted]625	Polymer Feed Rate	40		(ML/Min)

Utilities & Ecology Turnover 10/31/2005 6:30:00 AM Day Shift

Area	Unit	Start Val	End Val	Measurement
[redacted] K7625	Polymer Level	OK		(Ft - In)

Deep Well Inspection / Outside Readings:

Area	Unit	Start Val	End Val	Measurement
#3 Well V7660	Injection Pressure	201	203	(0-1000 Psig)
	Annulus Pressure	317	325	(200 Psig Min)
	Well Flow	112	115	(GPM)
	POT Level	55	55	(Gauge)
	POT Pressure	385		(200 Psig Min)

PACT Unit:

Area	Unit	Start Val	End Val	Measurement
S7625	pH	3.8		(pH)
	Sulfite	10		(PPM)
T7679	Level	78	79	(%)
	Feed Rate	325.0	324.4	(GPM)
PACT Unit	Effluent pH	7.2	7.2	(pH)
	Effluent Routing	STORMWATER		(ST202 / Storm Water)
T7636	pH @ 8:00	7.2		(pH)
	D.O.	0.7	0.5	(PPM)
[redacted] 7644	Sludge Depth @ 8:00	7.6		(in)
	Recycle	97		(GPM)
	Wasting	DAYS		(Total)
T7640	pH @ 8:00	7.3		(pH)
	D.O.	3.1	3.1	(PPM)
T7648	Sludge Depth @ 8:00	8.0		(in)
	Recycle	95		(GPM)
	Wasting	DAYS		(Total)
T7633	Caustic Tank	15.9		(Reel Gauge)
	Gallons	24058		(Gal)
	Level	55	55	(%)

PACT Unit Sample Results:

Area	Unit	Start Val	End Val	Measurement
T7679	AMM	10		(Result)
	PHOS	0		(Result)
	TOC	802		(Result)
T7650	AMM	10		(Result)
	PHOS	2		(Result)
	TOC	16		(Result)
	TSS	14		(Result)
	PHEN	0		(Result)
[redacted] 652	AMM	5		(Result)
	PHOS	1		(Result)

Utilities & Ecology Turnover 10/31/2005 6:30:00 AM Day Shift

Area	Unit	Start Val	End Val	Measurement
[redacted] T7652	TOC	8		(Result)
	TSS	7		(Result)
	PHEN	0		(Result)

PACT Nutrient Feed Rates:

Area	Unit	Start Val	End Val	Measurement
T7642	Carbon Silo Level %	65	66	(%)
PACT	Carbon Addition	DAYS		(Hrs/Day)
	Phos Acid Feed Rate	5.5		(ml/min)
	Urea Feed Rate	100		(ml/min)
T7695	Urea Tank Level %	16	16	(%) Reorder @ 35% Level

Belt Pressures:

Area	Unit	Start Val	End Val	Measurement
Belt Press	Status	ON		(Status)
Buggy Status	East	FILLING		(Status)
	(West)	FULL		(Status)
T7673	Sluge Tank Level %	47	59	(%)

[redacted] Silo K7642 Bag House Opacity:

Area	Unit	Start Val	End Val	Measurement
K7642	Operator Name	KJKE		(Name)
	Any Visible Emmissions?	NONE		(Y/N)
	Work Order #	NONE		(WO #)

T7670 Profile Evaluation:

Area	Unit	Start Val	End Val	Measurement
Spigot 1	Level			(Level)
	Water %			(%)
	Oil %			(%)
	Sed %			(%)
Spigot 2	Level			(Level)
	Water %			(%)
	Oil %			(%)
	Sed %			(%)
Spigot 3	Level			(Level)
	Water %			(%)
	Oil %			(%)
	Sed %			(%)
[redacted] pot 4	Level			(Level)
	Water %			(%)
	Oil %			(%)

Utilities & Ecology Turnover 10/31/2005 6:30:00 AM Day Shift

Area	Unit	Start Val	End Val	Measurement
Digot 4	Sed %	0		(%)

Waste Oil Tracking:

Area	Unit	Start Val	End Val	Measurement
Rail Car 1	Car #	COCX-287216		(RC #)
	Status / Gallons	READY TO SHIP/16721		(Status / Gallons)
Rail Car 2	Car #			(RC #)
	Status / Gallons			(Status / Gallons)
T7626	Level	14000		(Gal)
	Status	SLUDGE		(Gal)
T7627	Level	15000		(Gal)
	Status	SLUDGE		(Gal)
T7611	Level	6-0A		(Ft - In)
T7665	Level	MTY		(Gal)
	Temp/Status	RUNDOWN		(Temp/Status)
	Last Desludge	10-2-05		(Date)
T7666	Level	MTY		(Gal)
	Temp/Status			(Temp/Status)
	Last Desludge	3-20-05		(Date)
T7667	Level	3:5 / 16450		(Gal)
	Temp/Status	DRAINING		(Temp/Status)
	Last Desludge	3-20-05		(Date)
T7668	Level	3:5 / 16450		(Gal)
	Temp/Status	READY		(Temp/Status)
	Last Desludge	10-11-05		(Date)
T7670	Level	12:5 / 42840		(Gal)
	Temp/Status	WAIT TO		(Temp/Status)
	Last Desludge	6-20-05		(Date)

Utilities & Ecology Turnover 10/31/2005 6:30:00 AM Day Shift

Buggy Status:

Area	Unit	Start Val	End Val	Measurement
	Buggy #1	447		(Buggy #)
	Status	MTY		(Status)
	Buggy #	439		(Buggy #)
	Status	MTY		(Status)
	Buggy #	1494		(Buggy #)
Dewatering	Status	DRAINING		(Status)
Buggies	Buggy #	1495		(Buggy #)
	Status	MTY		(Status)
	Buggy #	416		(Buggy #)
	Status	MTY		(Status)
	Buggy #	406		(Buggy #)
	Status	DRAINING		(Status)
	Buggy #	USFILTERS		(Buggy #)
	Status	MTY		(Status)
	Buggy #	3		(Buggy #)
PIBSA	Status			(Status)
Emulsion	Buggy #			(Buggy #)
Buggies	Status			(Status)
	Buggy #			(Buggy #)
	Status			(Status)
	Deodorant	OK		(Amount)
ntory	Dewatering Liners	OK		(Count)

Landfill Inspection Checklist:

Area	Unit	Start Val	End Val	Measurement
Landfill B	Inspected?	Y		(Y/N)
Landfill C	Inspected?	Y		(Y/N)
Sump 1	Auto/Manual	A		(Auto/Manual)
	Pump	N		(Y/N)
	Alarms? High Level/Seal/Heat	N		
	Pump Tested?	Y		(Y/N)
	Lights Tested?	Y		(Y/N)
Sump 2	Auto/Manual	A		(Auto/Manual)
	Pump	N		(Y/N)
	Alarms? High Level/Seal/Heat	N		
	Pump Tested?	Y		(Y/N)
	Lights Tested?	Y		(Y/N)
Sump 3	Auto/Manual			(Auto/Manual)
	Pump	NO POWER		(Y/N)
	Alarms? High Level/Seal/Heat			
	Pump Tested?			(Y/N)
	Lights Tested?			(Y/N)
Sump 4	Auto/Manual	A		(Auto/Manual)
	Pump	N		(Y/N)
	Alarms? High Level/Seal/Heat	N		
	Pump Tested?	Y		(Y/N)
	Lights Tested?	Y		(Y/N)
Discharge Piping	Inspected? Pipe Leaking?	Y/N		(Y/N)
Totalizer/ Flow Meter	Working?	YES		(Y/N)

SULFITE Unit:

Area	Unit	Start Val	End Val	Measurement
Sulfite Unit	Status	DOWN		(On-line/Circulation)
T7632	Level	18	19	(%)
	Flow	1	1	(GPM)
T7654	pH	61	61	(pH)
T7658	pH	62	62	(pH)
T7669	pH @ 8:00	XXX		(pH)
	Sulfite @ 2:00	XXX		(Reading)
	Sulfite @ 2:00	XXX		(Reading)
ite	Effluent Routing	XXX		(Aftbay/ST202)
	Effluent TOC Results	XXX		(When unit is on-line)

Utilities & Ecology Turnover 10/31/2005 6:30:00 AM Day Shift

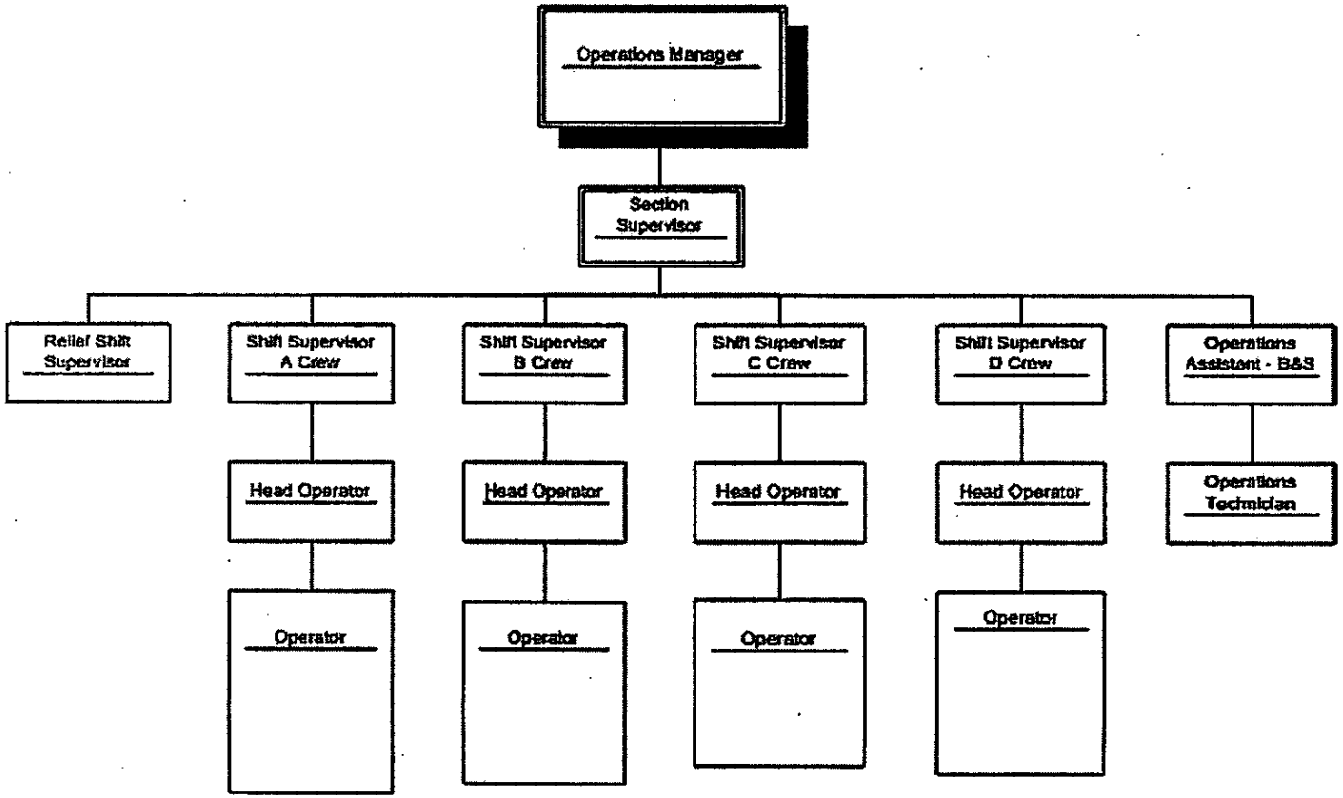
gy Operator Turnover Comments:

Effective	Expires	By	Comments
10/30 18:30	10/31 18:30	kle	1. COCX-287216 IS LOADED AND READY TO SHIP. (16721 GALS) 2. BASIN IS 4-0 AND FLOW TO RIVER IS 900 GPM 3. WEST BUGGY IS FULL. EAST IS FILLING 4. T-7667 AND T-7668 ARE DRAINING 5. T-7665 IS THE RUNDOWN

Appendix R

Solid Waste Facility Minimum Personnel

Operations
Utilities



Appendix S

Laboratory Results of Waste Stream Analysis

Pace Analytical®
New Orleans Laboratory

Phone: 504.469.0333
Fax: 504.469.0555
LELAP # 02006

December 06, 2005

Troy Gaubert
Chevron Chemical Co.
PO Box 70
Belle Chasse, LA 70037

RE: Project: 2055144
RE: Project ID: WASTESTREAMS

Dear Troy Gaubert:

Enclosed are the analytical results for sample(s) received by the laboratory on November 03, 2005. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy Olavesen

Cindy Olavesen

Pace Analytical Services, Inc.
1000 Riverbend Blvd. Suite F
St. Rose, LA 70087

Phone: 504.469.0333
Fax: 504.469.0555
LELAP # 02006

Pace Analytical®
New Orleans Laboratory

Report of Laboratory Analysis

Project Number: 2055144

ACCREDITED IN ACCORDANCE WITH nelac

Pace Analytical*
New Orleans Laboratory

Sample Cross Reference Report

Pace Analytical Services, Inc.
1000 Riverbend Blvd. Suite F
St. Rose, LA 70087

Phone: 504.469.0333
Fax: 504.469.0555
LELAP # 02006

Client: Chevron Chemical Co.

Project: WASTESTREAMS

Project No.: 2055144

Sample ID	Lab ID	Matrix	Collection Date/Time	Received Date/Time
TRIP BLANK	20410639	Water	11/01/2005 08:00	11/03/2005 09:30
WASTE OIL	20410640	Other	11/01/2005 08:35	11/03/2005 09:30
IGNITABLE LIQUIDS & SOLI	20410641	Other	11/02/2005 15:00	11/03/2005 09:30
LAB WASTE	20410642	Other	11/01/2005 10:00	11/03/2005 09:30
PACT FILTERCAKE	20410648	Other	11/01/2005 08:10	11/03/2005 09:30
BLENDED OILY FILTERCAK	20410649	Other	11/01/2005 13:45	11/03/2005 09:30
PROCESS WASTEWATER S	20410650	Other	11/01/2005 09:00	11/03/2005 09:30
STORMWATER SLUDGE	20410651	Other	11/01/2005 09:30	11/03/2005 09:30
BLENDED OILY FILTERCAK	20410659	Other	11/01/2005 13:45	11/03/2005 09:30
PACT FILTERCAKE TCLP	20410660	Other	11/01/2005 08:10	11/03/2005 09:30
PROCESS WASTEWATER S	20410661	Other	11/01/2005 09:00	11/03/2005 09:30
STORMWATER SLUDGE TC	20410662	Other	11/01/2005 09:30	11/03/2005 09:30

Pace Analytical*
New Orleans Laboratory

Report of Laboratory Analysis

Pace Analytical Services, Inc.
1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
Phone: 504.469.0333
Fax: 504.469.0555
LELAP # 02006

Client ID: STORMWATER SLUDGE
Client: Chevron Chemical Co.
Project: WASTESTREAMS
Site: None
Lab ID: 20410651
Project No.: 2055144 **Prep Factor:** 1
Description: None
Collected: 11/01/05 **Received:** 11/03/05
Matrix: Other **%Moisture:**

ParameterName	Method	Batch	DF	Result	Qu	Units	Adjusted MDL	Reporting Limit	Prep.	Analysis	Reg. Limit
Methanol	SW 8015M Dir	66414	1	ND		mg/kg	0.171	2.00	11/14	11/14 19:54	
Arsenic	Metals, ICP, So	66196	1	3.43		mg/kg	0.385	0.714	11/08	11/16 23:58	
Cadmium	Metals, ICP, So	66196	1	0.892		mg/kg	0.0971	0.357	11/08	11/16 23:58	
Lead	Metals, ICP, So	66196	1	13.6		mg/kg	0.184	0.357	11/08	11/16 23:58	
Molybdenum	Metals, ICP, So	66196	1	70.2		mg/kg	0.149	3.57	11/08	11/16 23:58	
Zinc	Metals, ICP, So	66196	1	3940		mg/kg	0.271	1.43	11/08	11/16 23:58	
2-Butanol (sec-Butyl alc	SW 8260 Volat	66162	1	ND	P7 A9	ug/kg	5770	50000	11/08	11/09 21:57	
Cyclohexane	SW 8260 Volat	66162	1	ND		ug/kg	82.0	1250	11/08	11/09 21:57	
Ethylbenzene	SW 8260 Volat	66162	1	7030	P7	ug/kg	57.0	1250	11/08	11/09 21:57	
Hexane	SW 8260 Volat	66162	1	28200	P7	ug/kg	482.	1250	11/08	11/09 21:57	
Isopropylbenzene (Cume	SW 8260 Volat	66162	1	2570	P7	ug/kg	50.0	1250	11/08	11/09 21:57	
1,2,4-Trimethylbenzene	SW 8260 Volat	66162	2	109000	P7 D1	ug/kg	80.0	2500	11/08	11/10 15:32	
m,p-Xylene	SW 8260 Volat	66162	1	35400	P7	ug/kg	98.5	1250	11/08	11/09 21:57	
o-Xylene	SW 8260 Volat	66162	1	19900	P7	ug/kg	61.0	1250	11/08	11/09 21:57	
Naphthalene	SW 8270 Semi	66326	10	ND	D2 P5	ug/kg	25000	100000	11/15	11/17 09:46	
N-Nitrosodiphenylamine	SW 8270 Semi	66326	10	ND	D2 P5	ug/kg	25000	100000	11/15	11/17 09:46	
Phenol	SW 8270 Semi	66326	10	ND	D2 P5	ug/kg	25000	100000	11/15	11/17 09:46	
Nitrogen, Ammonia	Ammonia, Soil	66188	50	2380	D1	mg/kg		250.	11/10	11/10 17:56	
Cyanide, Reactive	Cyanide, Reacti	66129	1	ND		mg/kg	24.6	24.6	11/07	11/07 14:50	
Flash Point	Flash Point, Clo	66311	1	95.0	A12	deg C			11/10	11/10 14:15	
pH	pH, Soil	66107	1	8.14		Std. Units			11/07	11/07 15:25	
Sulfide, Reactive	Sulfide, Reactiv	66128	1	195.		mg/kg	50.0	50.0	11/05	11/05 09:30	

22 parameter(s) reported

12/6/2005 08:11:31

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

New Orleans Laboratory Certifications
Louisiana Dept. of Environmental Quality (LELAP) - 02006
Puerto Rico - 3449
Louisiana Dept. of Health and Hospitals (ELAP)/Drinking Water - LA000006
Florida Dept. of Health/Hazardous Waste (NELAC) - E87595
Kansas Dept. of Health Environmental/ELWHW - E-10266
U.S. Dept. of Agricultural Animal & Plant Health Inspection Services
USDA Foriegn Soil Import (U.S Territories) - S-47270

Pace Analytical
New Orleans Laboratory

Report of Laboratory Analysis

Pace Analytical Services, Inc.
1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
Phone: 504.469.0333
Fax: 504.469.0555
LELAP # 02006

Client ID: STORMWATER SLUDGE TCLP
Client: Chevron Chemical Co.
Project: WASTESTREAMS
Site: None
Lab ID: 20410662 Leachate
Project No.: 2055144
Prep Factor: 1
Description: None
Collected: 11/01/05
Received: 11/03/05
Matrix: Other
%Moisture:

ParameterName	Method	Batch	DF	Result	Qu	Units	Adjusted MDL	Reporting Limit	Prep.	Analysis	Reg. Limit
Mercury	Mercury TCLP	66510	1	ND		mg/l	0.0600	0.000200	11/17	11/17 09:30	0.200
Arsenic	Metals, ICP, T	66511	1	ND		mg/l	0.0300	0.200	11/16	11/17 14:25	5.00
Barium	Metals, ICP, T	66511	1	ND		mg/l	0.00359	2.00	11/16	11/17 14:25	100.
Cadmium	Metals, ICP, T	66511	1	ND		mg/l	0.00380	0.100	11/16	11/17 14:25	1.00
Chromium	Metals, ICP, T	66511	1	ND		mg/l	0.00523	0.200	11/16	11/17 14:25	5.00
Lead	Metals, ICP, T	66511	1	ND		mg/l	0.0116	0.200	11/16	11/17 14:25	5.00
Selenium	Metals, ICP, T	66511	1	ND		mg/l	0.0561	0.200	11/16	11/17 14:25	1.00
Silver	Metals, ICP, T	66511	1	ND		mg/l	0.00805	0.200	11/16	11/17 14:25	5.00
Benzene	SW 8260 TCLP	66512	1	ND	C3	mg/L	0.0250	0.100		11/17 21:51	0.500
2-Butanone (Methyl eth	SW 8260 TCLP	66512	1	ND	C3	mg/L	0.0500	0.200		11/17 21:51	200.
Carbon tetrachloride	SW 8260 TCLP	66512	1	ND	C3	mg/L	0.0250	0.100		11/17 21:51	0.500
Chlorobenzene	SW 8260 TCLP	66512	1	0.109	C3	mg/L	0.0250	0.100		11/17 21:51	100.
Chloroform	SW 8260 TCLP	66512	1	ND	C3	mg/L	0.0250	0.100		11/17 21:51	6.00
1,2-Dichloroethane (Eth	SW 8260 TCLP	66512	1	ND	C3	mg/L	0.0250	0.100		11/17 21:51	0.500
1,1-Dichloroethene (Dic	SW 8260 TCLP	66512	1	ND	C3	mg/L	0.0250	0.100		11/17 21:51	0.700
Tetrachloroethene (Perc	SW 8260 TCLP	66512	1	ND	C3	mg/L	0.0250	0.100		11/17 21:51	0.700
Trichloroethene (Trichlo	SW 8260 TCLP	66512	1	ND	C3	mg/L	0.0250	0.100		11/17 21:51	0.500
Vinyl chloride (Chloroet	SW 8260 TCLP	66512	1	ND	C3	mg/L	0.0250	0.100		11/17 21:51	0.200
1,4-Dichlorobenzene (p-	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	7.50
2,4-Dinitrotoluene	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	0.130
Hexachlorobenzene	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	0.130
Hexachlorobutadiene	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	0.500
Hexachloroethane	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	3.00
2-Methylphenol (o-Cres	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	200.
3-Methylphenol (m-Cres	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	200.
4-Methylphenol (p-Cres	SW 8270 TCLP	66525	1	0.234	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	200.
Nitrobenzene	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	2.00
Pentachlorophenol	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0250	0.100	11/17	11/21 18:22	100.
Pyridine	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	5.00
2,4,5-Trichlorophenol	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0250	0.100	11/17	11/21 18:22	400.
2,4,6-Trichlorophenol	SW 8270 TCLP	66525	1	ND	C3	mg/L	0.0100	0.0400	11/17	11/21 18:22	2.00

31 parameter(s) reported

12/6/2005 08:11:31

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DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
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Kansas Dept. of Health Environmental/ELWHW - E-10266
U.S. Dept. of Agricultural Animal & Plant Health Inspection Services
USDA Foriegn Soil Import (U.S Territoies) - S-47270

CHAIN-OF-CUSTODY / Analytical Request Document

Pace Analytical

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Chevron Oronite Co. LLC	Report To: TROY Gaubert	Attention:
Address: 10285 Hwy 23 South	Copy To:	Company Name:
Belle Chasse, LA 70037		Address:
Email To:	Purchase Order No.:	Pace Quote Reference:
Phone: 504-391-6352 Fax: 504-391-6416	Project Name: WASTE STREAM 2ND half 2005	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☒ RCRA ☐ Other

SITE LOCATION

☐ GA ☐ IL ☐ IN ☐ MI ☐ MN ☐ NC ☐ OH ☐ SC ☐ WI ☐ OTHER

2005-144

Filtered (Y/N)

Requested Analysis: SEE ATTACHED sheet for Analysis

Residual Chlorine (Y/N)

Pace Project Number / Lab I.D

Section D Required Client Information

SAMPLE ID

One Character per box. (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Pace Project Number / Lab I.D
1	TRIP BLANK	WT	-	11/1/05	8:00am	—	—		2				✓					20410639
2	PACT FILTERCAKE	SL	G	11/1/05	8:10 AM	—	—		9	✓								6648
3	WASTE OIL	OL	G	11/1/05	8:35AM	—	—		6	✓								6649
4	PROCESS wastewater SLudge	OT	G	11/1/05	9:00AM	—	—		9	✓								6650
5	STORMWATER SLudge	OT	G	11/1/05	9:30 AM	—	—		9	✓								6651
6	LAB WASTE	OT	G	11/1/05	10:00AM	—	—		2	✓								6652
7	BLENDED Oily FilterCAKE	SL	G	11/1/05	1:45pm	—	—		9	✓								6653
8	Equitable Liquids & Solids	OT	G	11/2/05	3pm	—	—		7	✓								6641
9																		
10																		
11																		
12																		

Additional Comments:

NOTE - IF FLASH Point is below 140°F PLEASE CALL ASAP

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Troy Gaubert / Chevron	11/3/05	0800	Client / Pace	11/3/05	0805
Client / Pace	11/3/05	0930	[signature]	11-3-05	0932

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Troy Gaubert

SIGNATURE of SAMPLER: DATE Signed (MM / DD / YY)

SAMPLE CONDITION				
Temp in °C	4			
Received on Ice	Y/N	Y/N	Y/N	Y/N
Custody Sealed Cooler	Y/N	Y/N	Y/N	Y/N
Samples Intact	Y/N	Y/N	Y/N	Y/N

Appendix T

Formal Operator Training Program

Chevron ORONITE Oak Point Plant	OPERATIONS DEPARTMENT ROLES & RESPONSIBILITIES	GOP-27 Rev: 1.00 Application Date: 08/03/05 Page 1 of 11

Revisions are shown by R and { Text. }

Uncontrolled Copy

APPROVAL

ORIGINATED	REVIEWED	AUTHORIZED
OPERATIONS CLERK	PRODUCTION PLANNING SUPERVISOR	OPERATIONS MANAGER
	J. C. PITTMAN	
	OPERATIONS SECTION SUPERVISOR	
	T. T. TORTORICH	
D. C. WASHINGTON	M. A. RICHARD	A. W. WELLER

DISTRIBUTION

HARD COPY

Copy 1	Manufacturing Shift Supervisor's Office
Copy 2	Blending, Shipping, Utilities and Ecology Shift Supervisor's Office
Copy 3	Planning Supervisor's Office

Hard Copies, other than those listed in the Distribution List above, shall be considered uncontrolled copies and will not be updated.

OPDMS

All networked personal computers shall have access to the most current version of this Plant Instruction in accordance with PI-111, "Control of Quality Assurance Related Documents and Procedures."

1.0 Introduction/Scope

The purpose of this general operating procedure is to describe how the Oak Point Plant is supported by the policy, organization, and activity of the Operations Department. This manual provides the policy statements, instructions, and guidelines for Operations Department personnel whose actions affect the quality of Oak Point Plant products.

The general operating procedure describes the management responsibilities of the Operations Department, which support the overall quality-related goals and policies of the Oak Point Plant. These goals and policies are defined and performed in accordance with the International Standard, ISO 9002, and the Oak Point Integrated Compliance Management Systems Manual.

This procedure acts as a controlling reference for the development and implementation of manuals, documents and procedures within the Operations Department.

2.0 Procedure

The Operations Department staff provides specific support to the overall Quality system in place at the Oak Point Plant. Each staff member has obligations which support the quality-related administrative and performance requirements and functions of the Department. The Operations Department includes Planning, Blending, Shipping, Utilities and Ecology (BSU&E) and the Manufacturing Area. The obligation of each staff member is summarized below:

2.1 Operations Section Supervisor

The Operations Section Supervisor is responsible to the Operations Manager. The Section Supervisor ensures that activities, in the Operations Department, related to elements of the quality system are accomplished in accordance with the policies and procedures outlined in this procedure and associated documents. The Section Supervisor has the authority and responsibility to stop any process in the Operating Areas displaying a major nonconformance. The Section Supervisor's quality responsibilities include:

- Review and implementation of most recent versions of the Level 3 documents developed for the Operations Areas.
- Authorize the use of temporary procedures during the installation and testing of new or modified equipment, or required by process changes.
- Authorize the use of non-ISO formatted system Operating Instructions as an attachment to an ISO formatted procedure.
- Authorize the acceptance and use of purchased components and internally produced components, which do not meet specifications, using all resources available.
- Ensure products shipped conform to all customer specifications or that a waiver, for any off-test product, has been approved prior to delivery.
- Ensure that appropriate and effective corrective action is planned, prioritized, and followed up on, to prevent recurrence of all known nonconformances in the Operations Department.
- Manage the Internal Process Audit System in the Operations Department and designate auditors for this program.

2.2 Operations Assistant

The Operations Assistant is responsible to the Section Supervisor. The Operating Assistant ensures that the activities in the areas related to elements of the quality system are accomplished in accordance with the quality policies and procedures outlined in this manual and associated documents. The Operating Assistant is responsible for the review and development of the Level 3 documents for the area, including those for raw materials purchased for the areas and ensures that they are current and implemented. The Operating Assistant is responsible for ensuring that components, which are handled in the Operating Department areas, conform to all specifications. The Operating Assistant at times assumes the position of Section Supervisor or Shift Supervisor and complies with their respective responsibilities as listed.

The Operations Assistant ensures that the appropriate actions are initiated to control the nonconformance and to prevent recurrence of future nonconformances following established procedures.

The Operations Assistant has the authority and responsibility to stop any process in the area displaying a major nonconformance. The Operations Assistant ensures that appropriate and effective corrective action is taken to prevent recurrence of all known nonconformances in the Operating Assistant's area of responsibility.

2.3 Operations Department Technician(s)

The Operations Technician is responsible to the Operations Assistant. The Operations Technician at times assumes the position of Operations Shift Supervisor and complies with their respective responsibilities as listed.

The responsibilities of this position include:

- Ensure that all new or modified area systems work as designed
- Review and approve system sketches and P&ID's relating to the area
- Follow start-up of new installations or equipment returning to service after major shutdowns
- Coordinate activities with the Engineering, Maintenance and Construction Departments to avoid delays
- Conduct periodic safety/housekeeping audits during shutdowns and new construction
- Assist in the development of all Level 3 and Level 4 documents for the area as required
- Ensure all Level 3 and Level 4 documents for the area remain current and accurate by revising as needed
- Ensure all Level 3 and Level 4 documents meet ISO 9002, Chevron Policy 530 and OSHA requirements pertaining to the area
- Develop necessary training material and train area Operators prior to start-up of new or modified equipment and forwards records of training to the Operations Clerk
- Work with the Management of Change (MOC) Coordinator for (MOC) process in the area

- Work with the I&E Engineering Group to develop computer graphics and control schemes for process control
- *Manage the Internal Process Audit System in the Operations Department and designates* auditors for this program.
- Submit quarterly reports on process audit summary and contractor performance to the Compliance Manager.
- Review OSHA procedures and produce annual reports
- Create monthly hypothetical drills involving process upsets
- Represent the area during HAZOPS and handle any required action items
- The Technician has the authority and responsibility to stop any process in the Operations *Department area displaying a major nonconformance*

2.4 Operations Clerk

The Operations Clerk is responsible to the Operations Assistant and performs the following activities in accordance with established procedures:

Production Tracker Administrator:

- Troubleshoot problems for area Operators & Supervisors
- Participates in the advanced testing of changes and updates
- Provide tailgate training to Operators on changes and updates in Production Tracker
- Monitor unloads and batch activity for problems and completions
- Work with Security Supervisor to ensure unloads and containers are complete in a timely manner
- Develop metrics to measure the percentage of off-test material filtered on schenks requiring re-filtration on the centrifuge
- Track monthly non-conformances on filtration utilizing Production Tracker
- Provide computer and software troubleshooting for all areas

Knowledge Planet Administrator:

- Utilize advance KP knowledge to handle training needs for area
- Share best practices and provide training and assistance to other administrative assistant
- Maintain up to date training records in KnowledgePlanet for represented employees
- Assign mandated cbt(s) to employees

Misc:

- Handle all Operations procurement orders to include various items (pipe wrenches, stealth lites, freezers, lighting for control room, cart for PIB Operators, etc.)
- Maintain business contact with vendors & suppliers
- Coordinates and organize office moves, space planning, computer equipment, etc.
- Handle travel arrangements as requested

2.5 Operations Area Shift Supervisor

The Operations Area Shift Supervisor is responsible to the Operations Section Supervisor. The Shift Supervisor ensures that those activities in the Operations Area which are related to elements of the Quality system are accomplished in accordance with the quality policies and procedures outlined in this procedure and associated documents.

The Operations Area Shift Supervisor has the authority and responsibility to stop any process in the Area displaying a major nonconformance. The Shift Supervisor ensures that the appropriate actions are initiated to control the nonconformance and to prevent recurrence of all future nonconformances following established procedures.

2.5.1 The BSU&E Shift Supervisor's quality responsibilities include:

- Supervising BSU&E Operations Area Head Operator, Operators, and Trainees
- In association with the Operations Section Supervisor and/or the Planning Supervisor, determine priorities for the blending of blend packages, loading of bulk product for shipment to customers, the unloading of purchased bulk components from external suppliers, and the transfer of components into the B&S Area from manufacturing areas of the Oak Point Plant.
- Reviewing product test results from the Quality Control Laboratory and coordinating retest requirements with the Quality Control Laboratory Shift Supervisor.
- Accepting or rejecting purchased raw materials and components delivered to B&S from external suppliers.
- Accepting or rejecting components from the manufacturing areas of the Oak Point Plant.
- Ensuring that specified storage conditions are maintained in all tanks within the B&S Area.
- Reviewing all Quality Records generated by the B&S Area.
- Monitoring training activities for Head Operators, Operators and Trainees as required by GOP-26, Formal Operator Training Program, and PI-013, Formal Head Operator Training Program.

2.5.2 Blending and Shipping Area Head Operator

The B&S Head Operator is responsible to the BSU&E Shift Supervisor. The quality responsibilities of this position include:

- Delegating work assignments to the B&S Operators and monitoring all activities.
- Accepting component transfer requests from the manufacturing areas of the Plant and verifying that required Quality Control Laboratory test results meet specifications required for transfer.
- Shipping tank truck and ISO-containers from the B&S Area after verification that required Quality Control Laboratory test results meet all specifications and that all shipping requirements listed on the Bill of Lading have been met.

- Reviewing Quality Records generated by the work performed by the B&S Operators.
- Completing accurate records of all quality-related work performed in the work area.

2.5.3 Blending and Shipping Operator

The B&S Operator is responsible to the B&S Head Operator and the BSU&E Shift Supervisor. The quality responsibilities of this position include:

- Loading of ships, barges, tank cars, tank trucks, ISO-containers and tote bins following established Operating Procedures.
- Unloading of ships, barges, tank cars, tank trucks, ISO-containers and tote bins following established Operating Procedures.
- Blending of specified finished product packages into tanks, tank cars, tank trucks and ISO-containers, following established Operating Procedures.
- Transferring of component stocks from Plant manufacturing areas to B&S storage tanks, following established Operating Procedures.
- Monitoring of storage tanks to ensure product quality.
- Sampling to ensure product quality.
- Completing accurate records of all quality-related work performed, following established Operating Procedures.

2.5.4 The Manufacturing Shift Supervisor's Quality responsibilities include:

- Supervising Manufacturing Head Operators, Operators, and Operator Trainees.
- Determining priorities for the manufacture of Detergents and Dispersant and Inhibitors components in association with the Manufacturing Operating Supervisor or the Operations Assistant.
- Reviewing product test results from the Quality Control Laboratory (QCL) and coordinating the necessary retest requirements with the QCL Shift Supervisor.
- Accepting or rejecting purchased raw materials and components delivered to Manufacturing from external suppliers.
- Accepting or rejecting components from other areas of the Oak Point Plant, where applicable.
- Ensuring that specified storage conditions are maintained in all tanks within the Manufacturing area.
- Reviewing Quality Records generated by the Manufacturing Department.

- Monitoring training activities for Manufacturing Head Operators, Operators and Operator Trainees as required by GOP-26, "Forma Operator Training Program" and PI-013, "Formal Head Operator Training Program".

2.5.5 Manufacturing Head Operator

The Manufacturing Head Operator has the authority and responsibility to stop any process in the Manufacturing area displaying a major nonconformance. The Head Operator is responsible to the Operations Shift Supervisor. The Quality responsibilities of this position include:

- Working with the Manufacturing Operators and Operator Trainees, and monitoring all activities in the areas.
- Releasing component transfer requests to Blending and Shipping & Utilities and verifying that required QCL test results meet specifications required for transfer.
- Ensuring that Tank Trucks, ISO-Containers and Tank Cars received from external suppliers meet all specifications by verifying QAL test results and that all requirements from the Bill of Lading have been met.
- Reviewing Quality Records generated by the work performed in the area.
- Completing accurate records of all quality-related work performed by the Head Operator in the work area.
- Ensuring equipment operation to meet production schedule
- Ensuring area housekeeping
- Ensuring safe work conditions

2.5.6 Manufacturing Operator

The Manufacturing Operators and Operator Trainees have the authority and responsibility to stop any process in the Manufacturing area displaying a major nonconformance. The Operators and Operator Trainees are responsible to the Operations Area Shift Supervisor. The Quality responsibilities of these positions include:

- Releasing component transfer requests to Blending and Shipping & Utilities and verifying that required QCL test results meet specifications required for transfer.
- Ensuring that Tank Trucks, ISO-Containers and Tank Cars received from external suppliers meet all specifications by verifying QAL test results and that all requirements from the Bill of Lading have been met.
- Completing accurate records of all quality-related work performed.
- Ensuring equipment operation to meet production schedule.
- Ensuring area housekeeping.
- Ensuring safe work conditions.

2.6 Production Planning Supervisor

The Production Planning Supervisor is responsible to the Operations Manager. The Production Planning Supervisor ensures that activities in the Planning Department related to elements of the quality system are accomplished in accordance with the quality policies and procedures outlined in this manual and associated documents. The Production Planning Supervisor is responsible for the review of the level 3 documents, covering raw materials purchase and production planning, developed for the Planning Department and ensures that they are current and implemented.

The Production Planning Supervisor has the authority and responsibility to stop any work process in the Planning Department displaying a major nonconformance. The Production Planning Supervisor ensures appropriate and effective corrective action is taken to prevent recurrence of all known nonconformances in the Supervisor's area of responsibility.

2.6.1 Lead Planner (Raw Materials)

The Lead Planner (Raw Materials) is responsible to the Production Planning Supervisor and performs the following activities in accordance with established procedures:

- Initiates and completes Purchase Orders for all **domestic and some imported** bulk and packaged raw materials.
- Maintains raw material Inventory levels
- **Maintains database of raw materials**
- Provides information for Planning reports
- Coordinates activities with Customer Fulfillment Analyst
- Reports to the Production Planning Supervisor

2.7 Planning Supervisor

The Planning Supervisor is responsible to the BS&U Section Supervisor. The Planning Supervisor ensures that activities in the Planning Department related to elements of the quality system are accomplished in accordance with the quality policies and procedures outlined in this manual and associated documents. The Planning Supervisor is responsible for the review of the level 3 documents, excluding those for raw materials purchase and production planning, developed for the Planning Department and ensures that they are current and implemented.

The Planning Supervisor has the authority and responsibility to stop any work process in the Planning Department displaying a major nonconformance. The Planning Supervisor ensures appropriate and effective corrective action is taken to prevent recurrence of all known nonconformances in the Supervisor's area of responsibility.

2.7.1 Customer Fulfillment Analyst

The Customer Fulfillment Analyst is responsible to the Planning Supervisor and performs the following activities in accordance with established procedures:

- Identifies, prioritizes and sets up Blends to be made

- Maintains database of all components to be used for blending
- Determines and maintains Inventory levels for bulk orders
- Coordinates activities with Tank Car Planner, Tank Truck Planner, and Drum Planner
- Reports to the Planning Supervisor

2.7.2 Order Entry Clerk

The Order Entry Clerk is responsible to the Planning Supervisor and performs the following activities in accordance with established procedures:

- Receives and distributes Shipping Requests for Order processing
- Ship/Confirm completed Orders in the Production Tracker and/or JD Edwards system
- Provides document distribution to customers
- Maintains all Order files, including attachment of any customer or carrier complaints related to the Order
- Receives daily work instructions from the Planning Supervisor and/or Customer Fulfillment Analyst

2.7.3 Tank Car Planner

The Tank Car Planner is responsible to the Planning Supervisor and performs the following activities in accordance with established procedures:

- Processes Tank Car Orders
- Updates Tank Car tracking information
- Provides shipping and inventory information for Planning reports
- Coordinates all activities with the Customer Fulfillment Analyst
- Reviews tank car shipping documentation upon the completion of product loading
- Completes or verifies tank car shipping papers associated with Orders, foreign and domestic
- Upon Order shipment, forwards tank car shipping documentation to the Order Entry Clerk
- Initiates Orders for Stock Transfers of inventory and raw materials

2.7.4 Tank Truck Planner

The Tank Truck Planner is responsible to the Planning Supervisor and performs the following activities in accordance with established procedures:

- Processes Tank Truck and ISO-Container Orders
- Ensures availability of product carriers
- Coordinates on-site scheduling of product loading with the Customer Fulfillment Analyst and other relevant plant personnel
- Maintains updated records on the carriers and associated loading information in the on-line database
- Coordinates activities with the Customer Fulfillment Analyst
- Receives daily work instructions from the Customer Fulfillment Analyst

2.7.5 Operations Assistant, Planning

The Operations Assistant is responsible to the Production Planning Supervisor, and performs the following activities in accordance with established procedures:

- Generates and maintains Planning Reports
- Initiates and completes purchase orders for long lead imported Raw Material
- Maintain inventory levels of long lead imports

2.7.6 Drum/Marine Planner

The Drum/Marine Planner is responsible to the Planning Supervisor and performs the following activities in accordance with established procedures:

- Processes Drum, Tote Bins, and Marine Orders
- Ensures availability of product carriers
- Coordinates scheduling of product loading with the Customer Fulfillment Analyst and other relevant plant personnel
- Maintains updated records on carriers
- Coordinates activities with the Customer Fulfillment Analyst
- Receives daily work instructions from the Planning Supervisor and/or Customer Fulfillment Analyst
- Coordinates activities related to obtaining and shipping Pre-shipment Samples
- Conducts Planning Department Internal Process Audits

- Maintains Planning Department ISO 9002 documentation
- Processes Ship Orders
- Reviews, verifies, complete and forward documentation, associated with Orders, foreign and domestic, upon completion of product shipping

3.0 Definitions

None

4.0 References

Codes and Standards

Part 1910 of Title 29 of the Code of Federal Regulations

International Standard, ISO 9002, Clause 4.18

ChevronTexaco Elements of Operational Excellence

Performance Documents

Oak Point Integrated Compliance Management Systems Manual

PI-111, Control of Quality Assurance Related Documents and Procedures

PI-113, Details of the Oak Point Document Management System, (OPDMS)

PI-186, General Training Practices

PI-321, Creating Operating Procedures

GOP-26, Formal Operator Training Program

5.0 Records

Obsolete copies of this procedure shall be archived in the OPDMS in accordance with Corporate retention guideline. Requests for review copies of documents in Archive Status shall be made in accordance with PI-113.

Record of Revisions and Reviews

Page	Revision	Date	Comments
1-10(0)	1.00	08/03/05	Creation of document to state responsibilities throughout the Operations Department by D. C. Washington.

(#) = Number of attachment pages

6.0 Attachments

None

Appendix U

Operation and Maintenance Plan for the Treatment Facility

Chevron ORONITE Oak Point Plant	ECOLOGY AREA NORMAL OPERATIONS PROCEDURE	7600-201 Rev: 3.00 Application Date: 03/04/04 QAR Document Code: N/A Page 1 of 22

Revisions are shown by R and { Text. }

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APPROVAL

ORIGINATED	REVIEWED	AUTHORIZED
OPERATIONS TECHNICIAN	OPERATIONS ASSISTANT	SECTION SUPERVISOR
R. D. PRICE	W. M. MAHONEY	E. E. LLEWELLYN

DISTRIBUTION

HARD COPY

Copy 1 Blending, Shipping, Utilities & Ecology Shift Supervisor's Office

Hard Copies, other than those listed in the Distribution List above, shall be considered uncontrolled copies and will not be updated.

OPDMS

All networked personal computers shall have access to the most current version of this Operating Procedure in accordance with PI-111, "Control of Quality Assurance Related Documents and Procedures."

1.0 Introduction / Scope

This operating procedure describes the routine and non-routine duties and responsibilities of the API Operator during normal operations of the Ecology area. Clarification of the daily routine is provided to help ensure that work is performed safely and efficiently. The instructions provided in this operating procedure must be adhered to for reliable and consistent operation of the Ecology Area.

The Operations Department originated this operating procedure per Plant Instruction 321, "Creating Operating Procedures," and shall also be responsible for revisions and updates.

WARNING
SECTION 2.0

S-7612 / S-7613, TOC Analyzer building, Sulfuric Acid Bin Area, S-7616 and T-7645 are yellow-lined areas. Proper protective gear must be worn per Plant Instruction PI-714, "Personal Protective Equipment."

2.0 Procedure

2.1 Daily Routine Duties

2.1.1 Turnover and Inspection

1. Obtain an oral and written turnover from the API Operator of the previous shift.

2. Read the Operating instructions (usually via e-mail), Area memos and Operating guidelines from the Process Engineer/Technician to see the latest process changes to the plant. Also consult with the Head Operator and Shift Supervisor for additional information on operating the Ecology area.

3. As soon as possible after receiving the turnover, make a physical inspection of the equipment in the area. Also check the status of the following:

   - The condition of the water in the Forebay, Flight Skimmers and Wemco (K-7624) Effluent
   - The alignment of the PACT effluent, Sulfite effluent and Storm Water effluent going to the River
   - The condition of Chemical Waste in and out of K-7615 and K-7625
   - The routing of Chemical Waste coming from the plant going to T-7610 / T-7611
   - The position of the Aftbay and Sluice gates
   - The routing of Chemical Waste to the PACT Unit and the TOC Analyzer (AIT-3783)
   - The status and routing of the Sand Filters
   - The routing and flow of the Influent streams to K-7615
   - The status and temperature of all Wet Oil Storage tanks
   - The tank levels and alignment of the run down tanks for T-7623 and V-7617
   - The status of the ST-202 Composite Sampler
   - The routing of Incinerator water or Chemical Waste to T-7645 / Deep Well #3

   NOTE: If Chemical Waste is routed to the Deep Injection Well, it has to be routed through K-7625 and the Sand filters first. It is an **environmental requirement** that Chemical Waste go through the Wemco before being

injected down the well. Incinerator water however, can be aligned straight to T-7645.

4. Record readings from the Honeywell (DCS) system according to the Water Treatment Unit Run Sheet (OP-1234) at the required times. Make adjustments to the plant as necessary.

NOTE: The Day shift initiates a new Water Treatment Unit Run Sheet (OP-1234) at 7:00 a.m.

5. Check the plant process variables such as St-102 / 202 pH, Chemical Waste Header flow, #3 Well pressures, ST-202 flow, area tank and sump levels etc. using the Honeywell (DCS) system.

6. Attend the daily Production Planning Meeting to receive an update on the area.

7. Gauge the following tanks during the shift or as needed:

- T-7665 (reel gauge)
- T-7666 (reel gauge)
- T-7667 (reel gauge)
- T-7668 (reel gauge)
- T-7670 (reel gauge)
- T-7611 (external tank gauge)
- T-7623 (visual gauge)
- T-7657 (visual gauge)
- T-7688 (visual gauge)
- T-7682 (sight glass)
- Nalco 7194 Plus Tote bin by K-7625 (visual gauge)
- Nalco 7194 Plus Tote bins under the belt press building (visual gauge)
- T-7682 Nalco 8108 Southwest of K-7624 (visual gauge)
- Univar Phosphoric Acid Tote bin (visual gauge)
- T-7695 Univar Urea (visual gauge)

Record the gauges on the Turnover or on the Ecology Run Sheet.

8. Complete an accurate and detailed Ecology turnover. Be sure to update the turnover late in the shift so it will be current.

9. Give a thorough oral and written turnover to the next, oncoming API / Ecology Operator.

2.1.2 Daily Tasks

1. Drain off any water contained in the Wet Oil tanks. Do this many times during a shift. If or when water is not present, heat the Wet Oil tanks without exceeding 150° F. Agitation may be needed during the heating process. When this temperature is reached, maintain it and shut off any agitation. Reattempt to drain water again.

2. Transfer V-7617 to a Wet Oil tank.

3. Add 3 lbs. of Bio Chem 1008 (add during the Day @ 10:00 am) to the Pad Unit.

NOTE: The Process Engineer or Shift Supervisor may change the amount or type of bugs according to the current needs of the Basin.

4. Skim oil from T-7620 to K-7615 using the tank's internal skim line. Do this at least once a shift. Use the following procedure:

5. Raise the skim line above the liquid level in T-7620

6. Slowly lower the skim line into the top liquid layer of the tank

7. Open the valve on the skim line about half way and observe the liquid draining into K-7615. Oil should be flowing through the skim line.

8. If there is no oil flow or if the oil stops flowing, slowly lower the skim line and check for more oil

9. Keep following this process until only water is observed coming out of the skim line. At this point, close the valve on the skim line

10. Receive Waste oil by vacuum truck from other areas of the plant and store it in the proper Wet Oil tank.

NOTE: Do not transfer cold waste oil into a hot Wet Oil tank over 150 degrees. The water in the waste oil mixture could expand rapidly and overflow the tank.

NOTE: While not absolutely necessary, T-7666 / T-7667 should be aligned to receive waste oil from the Storm Water system. T-7665 / T-7668 should be aligned to receive waste oil from the Chemical Waste system.

11. Receive Chemical Waste by Vacuum truck from other areas of the plant and store it in the proper tank. If the Chemical Waste material that is received is suspected to or has a high TOC, store it in T-7611, if allowed. If the waste has a very low TOC value it may be drained into S-7612. Call the Process Engineer or Shift Supervisor if you are unsure where to store the material.

NOTE: It is important to put any high or unknown value TOC material into T-7611. This is done so that the material will not cause a disruption to the PACT unit. This Waste material can then be slowly drained or pumped into the Chemical Waste system through K-7615, S-7612 or K-7625 when conditions allow.

12. Obtain the required Integrator readings from the Honeywell (DCS) computer at 5:00 am on night shift and 5:00 pm on day shift. Record the following readings on the Turnover:

- Stream 102 integrator
- Stream 202 integrator
- Injection well #3 integrator
- Chemical waste integrator

13. Check the chemical inventory in the area. Be sure that the plant is not low on Nalco Polymer, Sulfuric Acid, Phenobac, etc. If any are found to be low, notify the Shift Supervisor and Head Operator so it can be reordered.

14. Check the status / condition of the ST-202 Composite sampler. Inspect the following:

- Check the condition of the Composite bottle in the Sampler. The Composite bottle should be clean and free from Algae. If it is not clean, exchange the sample bottle for a clean one.

- Check the amount of sample in the Composite bottle. Compare the sample volume in the bottle to the amount of time since the Composite sample was started. If the amount of sample is not appropriate, then a work order may be needed to adjust the sampler.

- Check the operation of the Sampler. You should be able to hear the sampler mechanism sampling. You should also be able to see a small amount of sample (water) flowing into the Composite bottle.

- Check the condition of the Composite sample tubing / funnel going to the sample bottle. The sample tubing and funnel should be clean and free from Algae, sediment etc. If it is dirty, change or clean the tubing / funnel.

- Check the temperature of the Composite Sample refrigerator. The temperature has to be between 33-40 degrees F. If it is not write an "E" Work Order to repair.

NOTE: It is an **environmental requirement** for the temperature of the Composite Sample refrigerator to be between 33-40 degrees F.

15. Perform an inspection of the Landfill.

- Check the status and condition of all Leachate and Storm Water pumps in the area.
- Check all indicator lights and alarms on the control panels for proper operation.
- Inspect the condition of each Leachate sump and make sure that it is not overflowing.
- Check the status and overall condition of the Landfill.

16. Perform a physical check of the Basin. Take note of the Basin level and the number of aerators that are running for the Turnover. All aerators should be on at all times unless otherwise instructed by the Shift Supervisor or the Process Engineer. Check the Basin for an unusual amount of floating oil. If there is a lot of oil, request a Vacuum Truck to have it removed. Make sure the Bug Farm Pad Unit aeration blower is running. If the blower is not running, refer to the Ecology Area Troubleshooting Procedure (7600-301) section 2.1.5.

17. Obtain the required readings from the following outside equipment and record these readings on the Ecology Turnover or Run Sheet:

- Injection well #3 head pressure
- Injection well #3 annulus pressure
- Injection well #3 annulus pot level (V-7660)
- Injection well #3 annulus pot pressure (V-7660)
- Injection well #3 Nitrogen cylinder pressure
- Nalco pump feed rates
- Composite Sampler status / condition
- Tote bin / chemical feed tank levels
- Area tank gauges and temperatures
- Landfill Leachate / Storm Water pump status
- Basin level
- Number of Basin aerators in operation

NOTE: Compare the Outside well readings to the readings on Honeywell (DCS) to see if they are accurate. If a reading is not accurate, write a work order to have the transmitter recalibrated.

18. Direct the duties of the Vacuum Truck driver for the Ecology Area. Have the Vacuum Truck driver fill out an Ecology Vacuum Truck Duties Sheet.

2.1.3 Area Sampling

1. Obtain all required samples according to the Ecology Sample Schedule. Log in and submit all Control Lab samples to the Ecology Control Lab at the specified times

NOTE: The Ecology Sample Schedule is posted in the Ecology Control Room and the Ecology Control Lab.

All Control Lab EPA samples **must** be turned in at the proper time and on the proper day. If there is any doubt about if the sample should be caught or if there is enough sample to turn in, catch the sample anyway and log it in. Let the final decision be made by the Ecology Lab Inspector or Shift Supervisor.

If a sample were missed for whatever reason, a Make Up sample must be caughtthe next day if we are flowing to the river. If we are not flowing to the river the next day, it must be caught the next day we flow to the river within that week. Contact the Process Engineer or Shift Supervisor about this for more information. Please note that if an EPA sample is missed it could result in an **environmental violation**.

NOTE: If the ST-202 Composite sample is **not** going to be turned in to the Control Lab or an Outside lab, then the Composite Sampler bottle must be emptied. This is done at 5 AM in the morning so a new Composite sample can be collected.

The following samples are Ecology Control Lab samples:

- Stream 202 Composite (TOC,TSS, BOD)
- Stream 202 Oil & Grease (O&G) with preservative (HCL acid)
- Stream 202 (TOC, TSS)
- Stream 102 (TOC)
- Forebay / K-7675 (TOC)
- K-7625 outlet (TOC)
- K-7630 / 7631 Sand Filter outlet (TSS)
- Basin Inlet (TOC)
- Leachate Composite (TOC, pH)
- T-7645 (Multiple tests)

NOTE: All Control Lab EPA samples must have their sample tag numbers recorded on the Turnover as well as the required Chain of Custody forms.

2. Special samples also need to be caught and turned in to an off-site lab. These samples are usually stored in the Ecology Lab refrigerator until the Sample Courier picks them up.

The samples listed below are special samples and are considered EPA required samples:

- ST-102 PACE

- ST-202 PACE
- T-7645 PACE

3. Fill out all Chain of Custody forms. Chain of Custody forms need to be filled out on all EPA required samples. These forms are to be filled out by the operator who caught the samples. The form is then turned in to the Ecology Control Lab for the Ecology Inspector to sign. Special samples going to an outside lab also require Chain of Custody forms. These forms are to be stored with the actual samples until a Sample Courier picks them up.

   Listed below are Chain of Custody forms for the area and who receives them:

   - PACE Analytical Chain of Custody Document – turned in to the PACE Sample Courier upon sample pickup
   - Permit Required Samples Custody Form – turned in every EPA sample day to the Ecology Inspector (Lab)
   - Weekly Permit Sample Record – turned in on Friday after completion to the Utilities Shift Supervisor

4. Obtain sample test results from the Control Lab and record the results on Ecology Area Turnover and Water Treatment Unit Run Sheet (OP-1234).

2.1.4 Sample Testing

The API / Ecology Operator will perform all non-Control Lab sample testing. The methods used for performing these tests are covered in the Ecology Area Analytical Tests Procedure, 7600-501.

1. Perform the following tests at the specified times as listed on the Water Treatment Unit Run Sheet:

   - Forebay – Phenol (Chemet), pH
   - Stream 202 - Phenol (HACH), pH
   - T-7645 – pH

2. Compare the sample (bench) test results to the readings from Honeywell (DCS) on the following EPA instruments: Record the information on the Water Treatment Unit Run Sheet.

   - AIT- 4325 (ST-202 to river pH)
   - AIT- 6224 (ST-102 pH)
   - AIT- 60002 (T-7645 pH)

   NOTE: An "E" Work Order must be generated if any of these in-line probes are more than 0.4 off from the lab (bench) test. A Work Order will also be needed if the lab (bench) test is showing that we are out of compliance but the in-line probe is showing that we are in compliance and the Shift Supervisor will determine if a call out is needed in either case if this occurs after normal maintenance hours. A grab sample must be obtained, tested and recorded every half-hour until the in-line meter is repaired.

3. After reviewing the sample results, make any necessary adjustments to the Ecology Area as needed.

NOTE: Since the Storm Water System normally discharges to the river it is vital that the test results, as well as other requirements, remain in compliance with environmental regulations.

2.2 Daily Miscellaneous Duties

2.2.1 Plant and Equipment Checks - Storm Water System

1. Check lube levels on all Ecology area Storm Water pumps.

2. Ensure that the Oil Skimmer belts, K-7623 A/B, are working properly in the Flight Skimmer area, K-7675 A/B. Wash away any trash build-up from in front of the belts with a hose or Jet Cleaner to ensure the best oil removal performance.

3. Check the level in the Oil Receiving Tank, T-7623. Drain off any access water on this tank if possible. If the level control on this tank is not working, manually pump the contents into one of the wet oil tanks.

NOTE: Frequently check the level of this tank. This tank can only store approximately 500 gallons and can quickly run over should there be a problem with this equipment.

4. Check the Nalco 8108 Polymer addition rate from T-7682 to the Storm Water Wemco (K-7624). Compare this rate to the Nalco 8108 Addition Chart that is located in the Strap Sheet book in the control room.

5. Ensure that the Basin Oil Mop (K-7680) is operating properly. Check the level of the Oil Receiving tank, T-7688. Drain off any excess water from this tank.

6. Ensure that the Front Ditch Oil Belt Skimmer (K-7657) is operating properly. Check the level of the Oil Receiving tank, T-7657. Drain off any excess water from this tank.

7. If the level in either of the Oil Receiving Tanks (T-7657 & T-7688) is high, then have the Vacuum Truck driver transfer the contents of these tanks to one of the Wet Oil tanks in the Ecology Area.

8. Check the status of the Aftbay gates. Use the following procedure for proper operation:

   - Open the gates prior to a heavy rainstorm or during a high level in the Forebay
   - Close the gates after the Forebay's level has equalized and / or after the bad weather has passed

2.2.2 Plant and Equipment Checks - Chemical Waste System

1. Check the lube levels for the Ecology area Chemical Waste pumps.

2. Check the operation of the Oil / Water Separator K-7615. Ensure that the Goo Gobblers in K-7615 are skimming oil and that the oil is being transferred to the Oil/Water Cell K-7617. Make sure that the water from the Oil/Water Cell K-7617 is transferring back to K-7615. Also make sure that the oil from this cell is being skimmed into the Oil Cell, V-7617.

3. Drain off any excess water on the Oil Cell V-7617. At the appropriate level, transfer the skimmed oil from V-7617 to one of the Wet Oil tanks.

4. Visually check the level of the Nalco 7194 tote bin located by the Chemical Waste Wemco, K-7625. Record the level on the Turnover. Change out the Nalco tote bin when it is empty, using a forklift.

5. Check the Nalco 7194 Polymer addition rate to the Chemical Waste Wemco, K-7625. Compare this rate to the Nalco 7194 Addition Chart that is located in the Strap Sheet Book in the Ecology Control room.

6. Keep track of the contents in the tanks T-7626 and T-7627. Note on the Turnover any changes in the volume. It is important to do this since the tanks are not set up for any form of gauging.

2.2.3 Plant and Equipment Monitoring – Storm Water System

1. Maintain approximately 5% overflow on the Storm Water Wemco, K-7624. Proper overflow is needed to keep the TSS Lab results low and within range. Also check and make sure that all the agitators and paddle skimmers are working properly on K-7624.

NOTE: When the controller FIC-6226 (Basin flow controller) is run in the Automatic mode, it obtains the set point from FIC-6221 (ST-202 flow controller). This helps maintain proper overflow in K-7624. If the Wemco overflow is inadequate, first try raising the multiplier set point to a higher numerical value. If this does not help, start the Booster Basin Pump, P-7680A

2. Monitor the flow from the Basin to the Wemco. If the flow to the Wemco (K-7624) is inadequate, use the Basin Booster pump P-7680 A to increase the flow. Regulate this pump's discharge pressure from 50 to 70 psi to protect the Basin's piping from damage. Bleed off any excess pump pressure to the Basin using the bypass line.

2.2.4 Stream 202 Flow Monitoring

- Monitor Stream 202's flow rate to the river. Regulate ST- 202's flow according to the sample results from both the Control Lab and non-Control Lab tests. Match these sample results to the flows listed in the ST-202 Flow Table book. Use the most restrictive flow rate out of all the Flow Tables as your ST-202 flow set point for controller FIC-6221.

- Alternate Tables in the ST-202 Flow Table book can be used to raise ST-202's flow rate if conditions in the Ecology Area demand it. When Alternate Tables are used be sure to keep in mind that they are designed to be used on a temporary basis only. Also, notify the Shift Supervisor and make a note on the Turnover when you are running on these tables.

  A list of ST-202's Flow Tables and Alternate Tables is shown below:

  - Table I - Stream 202 Average Discharge to River (Oil & Grease)
  - Table IA - Stream 202 Maximum Discharge to River (Oil & Grease)
  - Table II - Stream 202 Average Discharge to River (Phenol)
  - Table IIA - Stream 202 Maximum Discharge to River (Phenol)
  - Table III - Stream 202 Average Discharge to River (TOC)
  - Table IIIA – Stream 202 Maximum Discharge to River (TOC)
  - Table IV - Stream 202 Average Discharge to River (TSS)
  - Table IVA – Stream 202 Maximum Discharge to River (TSS)

- Under certain circumstances, the Utilities Shift Supervisor can choose to circumvent the Phenol Table (Table II) if a false reading is suspected on the non-Control Lab (operator)

Phenol tests. However, the Phenol Tables should only be bypassed if the needs of the plant warrant it. An example of this would be a high Basin level with rain occurring or anticipated.

A suspected false reading can only be justified if both of the following conditions are met:

a) A Storm Water Search of the Plant has been conducted and no Phenol leaks, contamination or spills have been found.

b) Each Production area has been questioned about a possible process upset or spill involving a product with a high Phenol content. Each area must confirm that neither event occurred nor did any such product get into the Storm Water system.

NOTE: Except for the situation listed above, ST-202 Flow Tables must be followed. Failure to do so may result in an **environmental violation.**

- If the Lab test results are good and ST-202's flow to the river is high, then govern the flow to the river according to the Basin level. If the Basin level is low (approximately 4' – 0" or lower) then the flow to the river may be lowered to help maintain this level.

- If ST-202's flow meter (FIT-4324) should fail, put ST-202 on circulation. Write an "E" Work Order to repair the meter.

2.2.5 Plant and Equipment Monitoring – Deep Well Injection

1. Monitor the differential pressure on Injection Well #3. If the differential pressure between the Well Head pressure (PT-6256) and the Annulus pressure (PT-6257) is less than 50 psi, raise or lower the pressure on the Annulus pot as needed to maintain the required pressure differential. Just be sure not to lower the Annulus pressure below 200 psi. If the differential pressure does not maintain at least 50 lbs. after making a couple of adjustments, notify the Head Operator and Shift Supervisor immediately.

NOTE: Failure to maintain at least a 50 psi pressure differential on the Well may result in an **environmental violation.**

2. Check the pressure on the Annulus Pot V-7660. If the pressure is too low, below 200-220 psi, then use a nitrogen cylinder to pressurize the pot to a minimum of 220 psi but not over 500 psi. If a pot pressure of 200 psi cannot be maintained, notify the Head operator and Shift Supervisor immediately.

NOTE: Failure to maintain at least 200 psi on the Annulus Pot may result in an **environmental violation.**

3. Check the level of the Annulus Pot V-7660. Make sure the pot's level is within the required 25% - 75% range. If the level of the pot is low add some of the prepared salt-water solution to the pot, stored in the Chemical Shed (B-141). If the level is too high, drain some of the liquid from the Annulus Pot into a container. Be sure to dispose of the Annulus liquid properly. Also, record the number of gallons added or drained from the Annulus Pot on the Turnover for the Environment Department. If the pot's level cannot be maintained after several adjustments, notify the Head Operator and Shift Supervisor immediately.

4. Monitor the level of T-7645. Do not allow the level of this tank to get too low. Failure to maintain an adequate level could result in damage to the well or well pumps. Use the Level Controller LIC-6272 to control the level in this tank.

NOTE: T-7645 has a low level shutdown device (LSLL-547) located on the West side of the tank. Also located near the tank is a control panel with a key switch that must be set in the "ENABLE MODE" for this shutdown device to be active.

Also make sure that T-7645 does not run over and overflow its chain wall. If it does, Sulfite water will get into the Basin through the Storm Water system. This could cause serious harm to the Bacteria in the Basin and on the Biodisk.

NOTE: The Level Controller LIC-6272 for T-7645 will automatically switch to the Manual mode and set the control valve output to 0% if T-7645's level is above 98%. Also, If T-7645's level gets below 55% the controller will automatically switch to the Automatic mode and enter a level set point of 90%.

5. Ensure that the flow rate down #3 Injection Well, as shown on FT-6246, is at least 50 gpm but not more than 300 gpm. Use the Well Flow / Spill Back Controller FIC-0348 to control the flow rate down the well as needed.

NOTE: Having a Well flow rate that exceeds 300 gpm may result in an **environmental violation**. Allowing the flow rate to drop below 50 gpm can cause the well to plug or silt up.

6. Monitor the pH of the chemicals going down Well #3. Maintain the Well pH between a 2.5 and 8.0. It is an **environmental requirement** to maintain the pH between 2.0 and 12.0. Use the acid pump by T-7645 to lower the pH as needed.

7. Check the level of the Sulfuric Acid tote bin by T-7645. Change out the Acid Tote bin when it is empty using the proper PPE.

2.2.6 Plant and Equipment Monitoring – Chemical Waste System

1. Monitor the level in T-7620. Keep T- 7620's level between 65% and 75%. The level in this tank can be controlled with LIC06241.

2. Monitor the condition of the Sand Filters by watching the differential pressure gauge on the Southeast side of the Filters. A differential pressure greater than 15 psi is considered undesirable. Ensure that the Sand Filters (K-7630 / 7631) backwash properly. If necessary, manually backwash the Sand Filters.

3. Monitor the level on the Reserve storage tank, T-7611. Make sure the level on this tank does not get too high. Room in this tank is needed for emergency storage for when upsets occur in the Ecology area.

4. Maintain an adequate overflow on the Wemco (K-7625) by either adjusting the flow coming from T-7620 to K-7625 via FCV-6243, or by adjusting the weir on the sump, S-7625. Also check and make sure that all the agitators and paddle skimmers are working properly on K-7625.

5. Monitor the level of the Chemical Waste Sump S-7612 (Sump A). Make sure the sump does not overflow or Chemical Waste will go into the Storm Water System. If you are having trouble with the level on this sump, check the inlet strainers for trash on both sump pumps.

2.3 Non Daily Miscellaneous Duties

2.3.1 Waste Oil Preparation and Off-Site Shipping

1. Heat and drain water off of all Wet Oil tanks.

2. After all water is drained off of a Wet Oil tank and the level in the tank is high, transfer the contents of this tank into T-7670.

3. Without exceeding 150° F, heat T-7670 and drain water from this tank.

4. After all the water has been drained off of T-7670, determine if part of this tank can be transferred to a Waste Oil tank car by running a Profile Test. Run a Profile on T-7670 following the Analytical Tests Procedure, 7600-501.

5. If the Profile results are acceptable and a Waste Oil tank car is available, prepare to make a Waste Oil transfer. Set the Unload / Skim arm on T-7670 to the same level as the lowest sample point that received acceptable profile results. Inspect and prepare the Waste Oil tank car for loading. Perform a Tank Car Pre-Load Inspection.

6. Before loading the Waste Oil tank car, be sure to follow the these procedures:

   - B & S Area Tank Car Loading Procedure (B&S -15)
   - GOP-5 Tank Car Inspection
   - Informational Highlighter on Combustible Liquid (Waste Oil) Tank Car Loading

7. Have a Vacuum Truck driver make the transfer to the Waste Oil tank car. Be sure to document the transfer by filling out a Tank Car Load Report. Note on the turnover the current status and details of the tank car and the transfer.

8. After the transfer is complete, close up the tank car for the Train Switch. Hold the car in the plant for a few days to allow the tank car to settle.

9. Reopen the tank car and make several attempts to drain water and sediment from the bottom valve. After all the water has been drained off, close up the tank car and prepare it for shipping.

10. To prepare the tank car for shipping, perform a Tank Car Inspection. Make sure the Tank Car has been sampled, gauged, sealed and placarded correctly. Complete the Tank Car Load Report.

11. Turn in the Tank Car Load Report. Notify the Shift Supervisor that the tank car is ready to be shipped. Update the status of this tank car on the Ecology Turnover.

2.3.2 Storm Water System Search

When contamination occurs in the Forebay, a Storm Water Search needs to be conducted.

The Forebay is considered to be contaminated when the following conditions are reached:

- A TOC value of 100 ppm or higher
- A pH below 6.0 or above 9.0 for more than 2 hours
- A Phenol result of 0.5 ppm

- An excessive amount of oil or chemicals coming into the Forebay

Conduct a Storm Water Search by performing the following:

1. Notify the Utilities Head Operator and Shift Supervisor of the problem.

2. Have the Utilities Head Operator notify all the other area Head Operators of the problem.

3. The Ecology Operator will determine which Storm Water Main is contaminated. There are three mains entering the Forebay: the East, Central and West Main. The West Main has been abandoned so there is no need to check it. Take a sample at the following Manhole locations to determine which Main / Header is contaminated:

   - Manhole # 1 is located on the Northeast side of the intersection of 9th and G Street. This is where the B&S area ties into the Central Main.
   - Manhole # 2 is located on the West side of the intersection of 9th and G Street. This is the West header for the Central Main.
   - Manhole # 3 is located on G Street between T-7170 and T-9723. This is the East Header for the Central Main.
   - The Manhole for the East Main is located Southwest of the old Ecology control room (Bldg. 142) on 9th street. This is the East Main coming from the East Tank Car Loading Rack.

   NOTE: Most of the Storm Water in the plant drains through the Central Main.

4. After the samples have been caught, run Lab tests to find out what sample is contaminated. If you are dealing with a TOC contamination, then the Control Lab will have to perform these tests for you. Now use the map of the plant located on the wall of the Ecology Control Room to determine which Header / Area the contamination is coming from.

5. The Utilities Shift Supervisor will now notify the supervisor from the area that the contaminant is coming from. This area now needs to sample the appropriate manholes and Source Control boxes to determine the source of contamination. Each sample will be labeled and brought to the Ecology Control Room for analysis. Listed below are some of the possible sampling locations:

   - In-plant Separator - North weir
   - In-plant Separator - West weir
   - In-plant Separator - East weir
   - OLOA 200 Plant Source Control Box
   - OLOA 219 Plant Source Control Box
   - Source Control Box #1
   - Source Control Box #2
   - Source Control Box #3
   - Source Control Box #4
   - Source Control Box #5
   - Source Control Box #6

6. When the source of contamination is found, it needs to be isolated from the Storm Water system. Have the Utilities Shift Supervisor notify the appropriate supervisor when the problem has been resolved.

7. If abnormal conditions persist, consult with the Utilities Shift Supervisor. If the level of contamination is such that it will cause serious harm the Basin, then the Storm Water System should be isolated. This is done by closing the Sluice Gate by K-7675.

   NOTE: The parameters below indicate when the Forebay might need to be isolated:

   - TOC - 150 ppm or higher
   - pH - Below 5.0 or above 10.0 for more than 2 hours
   - Phenol – 1.0 ppm or higher for more than 2 hours

   When test results indicate a high contamination in the Forebay, perform the following:

   a. Close the Sluice Gate.

   b. Use the Forebay Pump (P-7601) to pump the contaminated water to the Chemical Waste System.

   c. Continue sampling the Forebay every half-hour.

   d. When acceptable test results are achieved in the Forebay, Stop pumping P-7601, Open the Sluice Gate and return to normal operations.

2.3.3 Chemical Waste System Search

When contamination has occurred in the Chemical Waste system a search needs to be conducted.

To conduct a Chemical Waste Search, perform the following:

1. Obtain a sample of chemical waste influent from the Chemical Waste Header. Verify and identify the contamination in the sample.

2. Notify the Head Operator and Shift Supervisor of the problem.

3. Have the Utilities Shift Supervisor initiate a Chemical Waste Search. The Utilities Shift Supervisor will now notify the other area Shift supervisors to have each Chemical Waste sump in their area sampled. Each sample will be labeled and brought to the Ecology Control Room for analysis.

4. Ensure that you receive a sample from each sump in the plant. Make sure each sample is labeled with the Sump number, time of sampling and the name of the Operator who caught the sample.

   NOTE: A list of Chemical Waste sumps for the Plant is included in this procedure. See Attachment 3.

5. Record the information from each sample on a Chemical Waste Search List if needed by the Shift Supervisor.

6. Compare the samples from the Chemical Waste Sumps with the Chemical Waste Influent Sample.

7. If a match is obtained, have the Utilities Shift Supervisor notify the Supervisor of that area. When the source of the contamination is found, it needs to be isolated from the Chemical Waste System.

8. If the problem persists, consult with the Utilities Shift Supervisor. If the level of contamination is such that it will cause serious harm to the PACT Unit then the Chemical Waste System should be diverted to T-7611 or Well # 3.

9. When the problem is resolved, have the Utilities Shift Supervisor complete the Chemical Waste Search List.

10. Have the Utilities Shift Supervisor notify the other area shift supervisors that the problem has been resolved.

11. Resume normal operations.

2.4 Non – Daily Routine Duties

2.4.1 Ecology Routine Job Duties Folder

Complete Routine Duties as listed under the Utilities / Ecology Routine Job Duties Folder on the computer. The following are some of the Routine Duties that are listed:

- Ecology Area Fire & Safety Checklists, OP-510-42, complete every other Sunday day shift as per routine duties
- Ecology Hazardous Waste Storage Area Inspection Log, complete each Sunday day shift
- U&E Housekeeping Audit, complete each Sunday
- Ecology Area Pump Switch List, complete each Sunday day shift
- Ecology Truck Inspection / Checklist, complete each Saturday day shift
- Stream 202 Blow Back, complete each Saturday day shift
- Ecology Equipment Exercise & Testing Checklist, complete each Sunday day shift
- Ecology Sampling Schedule, complete on night shift
- Weekly Permit Sample Record, complete on night shift

2.4.2 Area Duties

WARNING
SECTION 2.4.2, STEP 1

SAM Unit acid tote bins contain concentrated Sulfuric Acid. Sulfuric Acid has a very low pH and is extremely corrosive and toxic. Operators must wear the proper PPE when hooking, unhooking and draining these tote bins.

Use extreme caution in the following step due to the fact that Sulfuric Acid reacts violently when mixed with water.

- Receive SAM Unit acid tote bins from the Detergents Area. When the pH of the Forebay and the Basin is high enough, drain the SAM tote bin into the Forebay **slowly**. A SAM tote bin should be drained carefully and over a long period of time.

- Run a profile on T-7670 every Sunday on night shift. The procedure for running a profile is in the Ecology Area Analytical Tests Procedure, 7600 – 501. Record your results on the Turnover.

- Blow back the ST-202 sample line as listed on the Computer Routine Duties folder. Use the following procedure:

NOTE: A blow back of the ST-202 sample line should not be performed on a day when the Composite sample needs to be turned in to the Lab.

1. Close the 1 ½" valve at the beginning of the sample line where it meets the ST-202 line located by the Aftbay.

2. Open the ¼ turn valve that tees into the stainless steel sample line. It is located by the Aftbay below the 1 ½" valve mentioned above.

3. Close ST-202 EPA sample point by the storm water Wemco.

4. Open the ½" air valve going into the Composite Sampler. This valve allows air into the Composite Sampler water line.

5. Allow the air to blow through the ¼ turn valve until the water/air looks clear.

6. When the water / air looks clear, Open ST- 202 EPA sample point by the storm water Wemco.

7. Close the ¼ turn valve that tees into the stainless steel sample line. It is located by the Aftbay below the 1 ½" valve.

8. When the water / air looks clear coming out of the ST-202 EPA sample point, Close the ½" air valve at the Composite Sampler.

9. Slowly close the ST-202 EPA sample valve until the flow is about the size of a pencil.

NOTE: Closing the valve to much will cause the water to free flow through the pump and overfill the composite bottle.

10. Make sure that the pump is pumping water into the Composite bottle.

NOTE: The pump may become air locked from blowing the process line. If this occurs, the pump will have to be bled down by cracking the bleeder on the side of the pump casing.

- Blow back flow meters FIT-6225 (ST-102) and FIT-6228 (Chemical Waste) once a week to ensure continued performance. Use the following procedure:

  1. Close the stainless steel valves on both sides of the local flow transmitter
  2. Open the air supply valve(s) below the transmitter to blow the line clear back to the orifice.
  3. Blow back the line for 30 seconds.
  4. Close the air supply valve(s) below the transmitter.
  5. Open the stainless steel valves on both sides of the local flow transmitter and return to normal operations.

- Unload Chemical Tote Bins such as Nalco Polymer, Sulfuric Acid etc. from delivery trucks when needed.

- Wash down the paddles and overflows from both the Storm Water (K-7624) and Chemical Waste (K-7625) Wemcos.

- During a Plant emergency, it is the duty of the Ecology operator to be prepared to throttle back on the ST-102 Return Line valve located on the corner of 9th and G Street. It is also the responsibility of the Ecology operator to monitor channel 1 on the radio. The Operator will be instructed on the radio when to throttle back on this valve. This procedure is done to increase water pressure on the Fire Water system during a fire in the Plant.

- Troubleshoot any equipment in the area that is not working or performing properly.

- Fill out Work Orders on any equipment in the area that needs repair or preventive maintenance.

- Make sure the area is clean and free from trash and debris. Roll up any hoses in the area when they are not in use.

2.4.3 Receiving Hazardous Waste

The Ecology operator receives Hazardous Waste drums from the plant. These drums are stored in the Hazardous Waste Storage Area on the East end of 9th Street. Perform the following when receiving drums:

1. Ensure that the drums or containers of hazardous waste do not have any leaks. Also make sure the containers are labeled with a yellow hazardous waste sticker that has been filled out properly.

NOTE: The hazardous waste sticker must be filled out with the name of our company, address, phone number, EPA ID# (LAD034199802) / manifest #, the starting accumulation date, and the proper DOT shipping name for the material. Be sure to contact the Environmental department if you have any questions.

2. Place the drum of hazardous waste inside the storage cabinets in the Hazardous Waste Storage Area. The cabinets can hold a maximum of four drums per cabinet.

3. If the storage cabinets are full, put the drum inside a secondary containment device such as a salvage drum or an overpack drum. Place the drum within the fenced Hazardous Waste area so that the yellow sticker can be seen. Be sure to notify the Environmental department that the storage cabinets are full.

4. All containers must be either placed into the cabinets or a salvage drum. If the container is too large for the cabinet or a salvage drum and the material cannot be transferred into drums for storage, Contact the Environmental Department for options.

5. Lock the Hazardous Waste Storage Shed and the gate to the Hazardous Storage Area. Be sure to put the keys back in their proper place.

6. Fill out the necessary information about the hazardous waste drum / container in Hazardous Waste Drum Log, OP-811. This Log is located in the Ecology Operator's desk. Record the following information in the Log:

   a. The date the drums or containers were received.

   b. The number of drums or containers received.

   c. Record in the log if a yellow hazardous sticker is visible on the side of the drum and if the information on the label is written clearly. Log in the name of the waste material contained in the drums / containers.

   d. Log in the name of the waste material contained in the drums / containers. If the content of the waste material is not known, have the Operator from the area where the waste originated take a sample and turn it into the Lab. Record the sampling date and contact the Environmental Department for the required sampling parameters. Also ask about the proper storage method until the results are complete.

   e. Write down the total number of drums on the pallet inside the storage shed (including the drum just received).

   f. Calculate the storage expiration date by adding 90 days to the date the drum was received. Record this date in the Log.

   g. Initial the Hazardous Waste Drum Log.

7. Monitor the drums in the Hazardous Waste Storage Area and ensure they are not stored for longer than 90 days. A Hazardous Waste Storage Inspection should be performed every Sunday on day shift.

   NOTE: An **environmental violation** may occur if a drum is stored on site for more than 90 days.

8. When the hazardous waste has been disposed of, record the following information on the Hazardous Waste Drum Log OP-811:

   - The date the material was removed from the Hazardous Waste Storage Area.
   - Company name of the Disposer.
   - Name of person authorizing disposal.

2.5 Using the Honeywell DCS Control System

- To obtain readings for Plant process variables from the Honeywell GUS station, do the following:

  1. Select the desired equipment page by picking on the corresponding grey button(s) on the bottom of the screen with the desired page name.
  2. Record the readings from the appropriate equipment page every two hours as specified on the Ecology Area Run Sheet.

- To change the mode of a process controller from Manual to Auto, perform the following steps:

  1. Pick on the control valve or pump symbol on the screen to bring up the controller window for that equipment. The controller window (or GSP plate) is usually displayed on the right side of the bottom DCS screen.
  2. Pick on the Manual button in the mode box, near the bottom of the controller window, to call up the drop down menu. Select Auto on the menu and hit the keypad enter key to accept.

     NOTE: When a controller goes into the Auto mode, the controller will automatically keep the current output (OP) the same and change the set point (SP) to a new calculated value. This is known as a Bumpless transfer. Bumpless transfer prevents the control valve or pump speed from swinging or changing rapidly when going from the Manual to Auto mode.

  3. Now check the controller's set point (SP), if applicable, and change it if needed.

- To change set points (SP) of a process controller on Honeywell, do the following:

  1. Pick on the control valve or pump symbol on the screen to bring up the controller window for that equipment. The controller window (or GSP plate) is usually displayed on the right side of the bottom DCS screen.
  2. If the controller is in Automatic, pick on the set point (SP) box and enter a new set point using the numerical keypad. Now press the keyboard enter key to enter the value.
  3. If the controller is in Manual, pick on the mode box near the bottom of the controller window. Select Auto on the drop down menu and press the keypad enter key.

     NOTE: When the controller switches from Manual to Automatic, the set point (SP) will change and match the current process variable. This is called Bumpless transfer.

4. Pick on the set point (SP) box and enter the new set point using the numeric keypad. Press the keypad enter key to enter the value.

- To change the mode of a controller from Auto to Manual, perform the following steps:

1. Pick on the control valve or pump symbol on the screen to bring up the controller window.

2. Pick on the Auto button in the mode box to call up the drop down menu. Select Manual from the menu and press keypad enter.

3. Change the output (OP) of the controller if needed. The procedure to do this is described in the next step.

- To change the valve position or output (OP) of a controller while it is in the Manual mode, do as follows:

1. In the lower part of the controller window, pick on the Output (OP) box and use the numerical keypad to enter the percent output that is desired. Press keypad enter to accept the value.

2. An alternative way to change the output is to pick on the Output (OP) box and use one of the four arrow buttons located on the bottom, right hand side of the lower DCS keyboard. The single arrow, up and down buttons will move the numerical output value 0.1% at a time. The double arrow, up and down buttons will move the output 2% at a time.

- To change the run or operating status of a pump or automatic valve, perform the following:

1. Pick on the specific pump or automatic valve symbol on the screen. The controller window for that equipment will now be displayed.

2. If the pump or valve is in Auto, it must be changed to the Manual mode. Pick on the mode box and select Manual from the drop down menu. Press the keypad enter key to accept.

3. Pick on the desired condition in the red or green boxes in the upper section of controller window. The desired conditions will be: Start or Stop for pumps, or Open or Close for valves. The condition that you have selected should appear in the output (OP) box. Press the keypad enter key to accept.

4. Select the Auto button from mode box to return the controller to Automatic operation if so desired. Also be sure to check the controller's set point after the mode changes to Automatic.

3.0 Definitions

Bi Chem Accelerator 2 -	A powdered form of Ammonium Chloride and Di Ammonium Phosphate.
Bi Chem 1008 -	Microorganisms (commonly referred to as "bugs") that are added to the Storm Water System to biologically remove or reduce chemical contaminants. This method of water treatment occurs at the Impounding Basin.
Forebay-	A rectangular, below grade channel that is a merging point for all the Storm Water drainage in the plant. There are three 42" mains that drain into the Forebay, but only the East and Center mains are in service.

Goo Gobbler –	A rotating neoprene drum designed to remove oil from water.
Nalco-	A chemical polymer which is injected into the Storm Water and Chemical Waste Wemcos to aid in coagulating suspended solids so that they can be removed from the water.
Oil Skimmers-	A rotating belt system designed to remove a large volume of oil from water. K-7615, K-7657, K-7675, and K-7680 are all Oil Skimmers.
Phenobac	1002-Microorganisms (commonly referred to as "bugs") that are added to the Storm Water System to biologically remove or reduce chemical contaminants. This method of water treatment occurs at the Impounding Basin.
S B Concentrate	Microorganisms (commonly referred to as "bugs") that are added to the Storm Water System to biologically remove or reduce chemical contaminants. This method of water treatment occurs at the Impounding Basin.
Wemco-	An Induced Air Floatation Unit which removes suspended solids and oil from water. This unit consists of four baffled compartments each with its own agitator that draws in a controlled amount of air. This air is whipped into the water, which creates fine bubbles (foam) that rise to the top carrying with them oil and solids particles. This upper layer of foam, along with the particles, is skimmed off the top with paddle skimmers. The treated/cleansed water underneath is then discharged.

4.0 References

Codes and Standards

OSHA 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals - Section (f) Operating Procedures

Responsible Care®, Process Safety Code of Management Practices - MP-7 Design Documentation

Chevron Corporation, Policy 530 – Safe Operations

Performance Documents

PI-113, Details of the Oak Point Document Management System (OPDMS)

PI-321, Creating Operating Procedures

PI-714, Personal Protective Equipment

Material Safety Data Sheets:

- Waste Water/Oils 2638
- Waste Oils 5804
- Incinerator Water 6274
- Phenol DV001253
- Nalco 7194 DV011835
- Nalco 8108 DV002030

- Carbon Dioxide DV000009
- Chloroform DV000541
- Sulfuric Acid DV010891
- Bi-Chem DC 1007AC DV013875
- Bi Chem 1008 Bi Chem 1008
- Bi Chem Accelerator II CV001015
- Phenobac 1002 DV003197

Additional Reading

PI-311, Lockout, Isolation and Release of Equipment for Mechanical Work

PI-708, Safe Practices for Entering and Working within Confined Spaces

PI-714, Personal Protective Equipment

7600-501, Ecology Area Analytical Tests Procedure

7600-101, Ecology Area Start Up Procedure

7600-601, Ecology Area Shut Down Procedure

5.0 Records

The following records are generated by this procedure:

- Ecology Area Turnover
- Water Treatment Unit Run Sheet (OP-1234)
- Ecology Area Sample Schedule
- Hazardous Waste Storage Area Inspection Log (OP-1800)
- Hazardous Waste Drum Log (OP-811)
- Fire and Safety Equipment Inspection Checklist (OP-1507)
- Ecology Equipment Exercising and Testing Checklist (OP-510-2)
- Ecology Area Truck Inspection / Checklist
- Ecology Vacuum Truck Duties Sheet
- Ecology Waste Oil Receiving Record / Tracking Information (OP-1686)
- Ecology Area Pump Switch List
- Storm Water Search List
- Chemical Waste Search List

Obsolete copies of this procedure shall be archived in the OPDMS for a minimum of 4 years, after which time they may be purged. Requests for review copies of documents in Archive Status shall be made in accordance with PI-113.

Record of Revisions and Reviews

Page	Revision	Date	Comments
1-17(1)	1.00	10/19/95	Creation of this operating procedure by C. D. Livingston.
1-18 (1)	1.01	01/25/96	Rewrite by C. D. Livingston to include minor revisions to Section 4.1.5.
1-22 (1)	1.02	04/02/96	Rewrite by C. D. Livingston to include revisions to Section 4.0 and the addition of Section 4.1.8.
1-23 (0)	1.03	08/17/98	Revision to Sections 4.2 and 5.0; also the deletion of Attachment 1 by J. E. Shetley.
1-22 (13)	2.00	09/19/02	Rewrite of this procedure by S. Van Marcke
1-22 (13)	3.00	03/04/04	Rewrite of this procedure by R. D. Price.

(#) = Number of attachment pages

NOTE: Version 3.00 is a complete rewrite of the former version; therefore, revision indicators are not shown.

6.0 Attachments

Attachment 1 – Ecology Area Process Variables
Attachment 2 – Ecology Area Equipment List
Attachment 3 – Chemical Waste Sump List

ATTACHMENT 1

ECOLOGY AREA PROCESS VARIABLES

Storm Water System

T-7623 Skimmed Oil Tank

Local Temperature Controller Set Point	140° F

T-7666 Waste Oil Separation Tank

TIC-7666 Local Temperature Controller Set Point	140° F

T-7667 Waste Oil Separation Tank

TIC-7667 Local Temperature Controller	
Set Point	140° F

P-7680 A Basin Booster Pump

Operating Pressure	75 psi or less
Maximum Pressure	100 psi

K-7624 Storm Water Wemco

Percentage of total inlet flow needed as Overflow	20%
Polymer Addition Rate	See Nalco Flow Table in Ecology Strap Book

Stream 202

FIC-4324 ST-202 Flow Controller

Normal Operating Range	650-1900 gpm
Composite Sampler Temperature	33° - 40° F

ST-202 Daily Permit Requirements

pH Range	6 min.– 9 max.
BOD	2,087 lbs. max.
Oil & Grease	385 lbs. max.
TSS	3,291 lbs. max.
Phenol	0.46 lbs. max.

ATTACHMENT 1 (Cont.)

Stream 102

ST-102 Daily Permit Requirements

TOC	5 mg / l max.
Phenol	0.1 mg / max.
pH	6 min. – 9 max.

Chemical Waste System

K-7615 Oil Water Separator

LIC-6237 K-7615 Sump Level Control

Set Point	50 – 60%
High Level Alarm	70%
Low Level Alarm	35%

K-7617 Second Stage Oil / Water Separator

LIC-317 Local Level Controller

Set Point	50%

T-7665 Waste Oil Separation Tank

TIC-7665 Local Temperature Controller

Set Point	140° F

T-7668 Waste Oil Separation Tank

TIC-368 Local Temperature Controller

Set Point	140° F

T-7620 Chemical Waste Surge Tank

LIT-6241 Level Transmitter for T-7620

Normal Operating Range	65 – 75%
High Level Alarm	80%
Low Level Alarm	50%

K-7625 Chemical Waste Wemco

FIC-6243 Flow Controller for K-7625

Typical Flow Set Point	550 – 650 gpm

P-7622 Polymer Air Pump for K-7625

Typical Flow Rate ..... 30 – 40 ml. / min.

ATTACHMENT 1 (Cont.)

S-7625 Wemco Effluent Sump

LIC-6242 Level Controller for S-7625

Set Point ..... 50 – 60%
High Level Alarm 75%

TOC Analyzer

AIT-3783 Chemical Waste TOC analyzer

Normal Operating Range ..... 400 – 2000 ppm
High TOC Alarm 2500
High-High TOC Alarm 3000

S-7616 Wemco Overflow Sump

LIT-6244 Sump Level Control for S-7616

Set Point ..... 40 – 50%

S-7612 Ecology Area Sump

P-7612 A Operation Set Points

On 50%
Off 30%

P-7612 B Operation Set Points

On 70%
Off 30%

K-7630 / 7631 Chemical Waste / PACT Unit Sand Filters

FIC-6245 Backwash Flow Controller for Sand Filters

Set Point ..... 650 gpm

PDS-5200 Differential Pressure Switch for Sand Filters

Set Point ..... > 15 psi

ATTACHMENT 1 (Cont.)

Sand Filter Backwash Cycle Timer Settings

Off-line Time	30 sec.
Delay Time	5 sec.
Drain Down Time	6 min.
Sparge Time	2.5 min.
Vent Time	30 sec.
Backwash Time	10 min.
Settle Time	30 sec.
Fill Time	20 sec.
Diff. Press. Time	60 sec.

Sand Filter Air Sparger Flow Rate ..... 110 SCFM

Sand Filter On-line Timer Setting ..... 10 hrs.

Deep Well Injection

T-7645 Deep Well Surge Tank

LIT-6275 Level Transmitter for T-7645

Normal Operating Range	80 – 90%
High Level Alarm	95%
Low Level Alarm	60%
Low-Low Level Shut Down	approx. 40%

AIC-60002 pH Controller for T-7645

Set Point	6 – 7 pH
Operating Range	2.5 – 8.0 pH

#3 Deep Injection Well

Well #3 Permit Requirements

Well Flow	20 min.- 300 max. gpm
Well Pressure	2,115 psi. max.
Annulus Pressure	200 min. – 500 max. psi
Injection / Annulus Diff. Press	50 psi min.
Annulus Pot Level (V-7660)	25 – 75%
pH range	2.0 min. – 12.5 max.

ATTACHMENT 2

ECOLOGY AREA EQUIPMENT LIST

Storm Water System		
Equipment	**Equipment Number**	**Description**
Forebay		**Storm Water Collection Channel**
	P-7601	Forebay Pump
Inlet Channel		**Storm Water Distribution Channel**
		Sluice Gate
S-7675		**Oil / Water Separators**
	MK-7675	Flight Skimmers
	MK-7623 A/B	Oil Belt Skimmers
	T-7623	Skimmed Oil Tank
	P-7676	Skimmed Oil Transfer Air Pump
Aftbay		**Bypass Channel**
		Aftbay Flood Gates
T-7666		**Waste Oil Separation Tank**
	MA-7666	Tank Agitator
	TIC-7666	Local Temperature Controller
	TV-7666	Temperature Control Valve
T-7667		**Waste Oil Separation Tank**
	TIC-367	Local Temperature Controller
	TV-367	Temperature Control Valve
		Utility Air Sparger
P-7668		**Waste Oil Transfer Pump**
	P-7668	Transfer Pump

ATTACHMENT 2 (cont.)

K-7657		**Front Ditch Oil Skimmer**
	MK-7657	Oil Belt Skimmer
	T-7657	Skimmed Oil Holding Tank
S-7680		**Storm Water Impoundment Basin**
	K-7649	Basin Oil Mop
	T-7688	Skimmed Oil Holding Tank
	P-7680 B	Basin Effluent Pump
	P-7680 A	Basin Booster Pump
	MA-7680 A - L	Basin Aerators
		Carbon Dioxide Injection
K-7624		**Storm Water Wemco**
	MA-7624 A/B/C/D	Wemco Aeration Agitators
	MK-7624 A/B	Wemco Paddle Skimmers
	P-7624 A/B	Wemco / ST-202 Discharge Pumps
	PIC-50126	Basin Water Pressure Control Valve
T-7682		**Wemco Polymer Storage Tank**
	P-7682	Polymer Air Pump for K-7624
ST- 002 / 102 / 202		**River Discharge Line**
	FV-6221	Stream 202 flow Control Valve
	FV-6245	ST-202 / Backwash Control Valve for Sand Filters
	YV-6223 A / B	ST-202 Circulation Control Valves
	AIT-6222	ST-202 pH Probe (Circulation)
	FIT-4324	ST-202 Flow Meter (EPA)
	AIT-4325	ST-202 pH Probe (EPA)
	FIT-6225	ST-102 Return Line Flow Meter (EPA)
	AIT-6224	ST-102 pH Probe (EPA)

ATTACHMENT 2 (cont.)

Chemical Waste System		
Equipment	**Equipment Number**	**Description**
Header		**Chemical Waste Header**
	FIT-6228	Chemical Waste Header Flow Transmitter
	FIT-5851	Leachate Composite Flow Meter for Landfills A/B/C
	FIT-5975	Leachate / Storm Water Flow Meter For Landfill D only
T-7610		**Pre-Skim Tank**
	T-7610	Oil / Sediment Separation Tank
T-7611		**Emergency Storage Tank**
	FV-6221	Chemical Waste Header Diversion Valve to T-7611
	P-7611	T-7611 Transfer Pump
	FIT-6230	Flow Meter for P-7611
	FV-6320	Flow Control Valve for T-7611

ATTACHMENT 2 (cont.)

K- 7615		**Oil / Water Separator**
	FT-6235	K-7615 Inlet Flow Meter
	MK-7615 A / B	Oil Belt Skimmers
	K-7615 C	Oil Conveyor for Oil Belt
	P-7615 A / B	K-7615 Effluent Pumps
	LIT – 6237	K-7615 Sump Level Indicator
	LV – 6237	Sump Level Control Valve
K-7617		**Second Stage Oil / Water Separator**
	LIC-317	Local Level Controller for K-7617
	LV-317	Level Control Valve
	P-7617 A / B	K-7617 Water Transfer Pumps
V-7617		**Oil Cell / Sump**
	P – 7618 A / B	Skimmed Oil Transfer Pumps
T-7620		**Chemical Waste Surge Tank**
	LIT – 6241	Level Transmitter for T-7620
		Skim Line
K-7625		**Chemical Waste Wemco**
	FIT-6243	Inlet Flow Transmitter from T-7620 to K-7625
	FV-6243	Flow Control Valve for K-7625
	AIT-3799	Chemical Waste pH Indicator
	MA-7625 A/B/C/D	Wemco Aeration Agitators
	MK-7625 A / B	Wemco Paddle Skimmers
	P-7622	Polymer Air Pump For K-7625
S-7625		**Wemco Effluent Sump**
	LIT-6242	Level Transmitter for S-7625
	LV-6242	Level Control Valve
	P-7625 A / B	S-7625 Effluent Pumps

ATTACHMENT 2 (cont.)

		Adjustable Weir
AIT-3783		**Chemical Waste TOC Analyzer**
	AIT-3783	TOC Analyzer
S-7616		**Wemco Overflow Sump**
	LIT-6244	Level Transmitter for S-7616
	LV-6244	Level Control Valve
	P-7616 A / B	Sump Pumps
T-7665		**Waste Oil Separation Tank**
	MA-7665	Tank Agitator
	TIC-7665	Local Temperature Controller
	TV-7665	Temperature Control Valve
T-7668		**Waste Oil Separation Tank**
	TIC-368	Local Temperature Controller
	TV-368	Temperature Control Valve
		Utility Air Sparger
P-7666		**Waste Oil Transfer Pump**
	P-7666	Transfer Pump
T-7670		**Waste Oil Storage Tank**
	TIC-7670	Local Temperature Controller
	TV-7670	Temperature Control Valve
		Skim Line / Transfer Line
		Air Sparger
S-7612 / 7613		**Ecology Area Sumps**
	S-7612	Sump A
	S-7613	Sump B
	LIT-6240	Level Indicator for S-7612 only
	P-7612 A / B	Sump Pump

ATTACHMENT 2 (cont.)

K-7630 / 7631		Chemical Waste / PACT Unit Sand Filters
	PDS-5200	Differential Pressure Switch
	FT-6245	Sand Filter Backwash Flow Meter
	CV-5217	K-7630 Drain Down Valve
	CV-5215	K-7630 Air Sparge Valve
	CV-5214	K-7630 Backwash Outlet Valve
	CV-5211	K-7630 Filter Inlet Valve
	CV-5212	K-7630 Filter Outlet Valve
	CV-5213	K-7630 Backwash Inlet Valve
	CV-5207	K-7631 Drain Down Valve
	CV-5205	K-7631 Air Sparge Valve
	CV-5204	K-7631 Backwash Outlet Valve
	CV-5201	K-7631 Filter Inlet Valve
	CV-5202	K-7631 Filter Outlet Valve
	CV-5203	K-7631 Backwash Outlet Valve
T-7639		**Backwash Water Surge Tank**
	T-7639	Backwash Tank (no longer in service)
T-7626		**Waste Oil / Sludge Storage Tank**
	LSH – 526	High Level Indicator
T-7627		**Waste Oil / Sludge Storage Tank**
	LSH – 527	High Level Indicator

ATTACHMENT 2 (cont.)

Deep Well Injection		
Equipment	**Equipment Number**	**Description**
T-7645		**Deep Well Surge Tank**
	LIC-6272	Tank Level Indicator / Controller
	LV-6272	ST-202 Make Up Level Control Valve
	HS-547	T-7645 Low Level Shutdown Control Panel
	LSLL-547	Low Level Switch
	P-7646 A / B	Deep Well Injection Pumps
	AIT-60002	T-7645 pH Controller
	AE-60002	pH Probe
	P-7645	Sulfuric Acid Metering Pump
#3 Well		**Underground Deep Injection Well**
	FIC-0348	Well Flow / Spill Back Controller
	FV-0348	Well Flow / Spill Back Control Valve
	FT-6254	#3 Well Flow Transmitter (EPA)
	PT-6256	Well Injection Pressure (EPA)
	PT-6257	Annulus Pressure (EPA)
	TT-6255	Injection Fluid Temperature Indicator
	V-7660	#3 Well Annulus Pot
	LT-6258	Annulus Pot Level Indicator
		Nitrogen Cylinders for Annulus

ATTACHMENT 3

CHEMICAL WASTE SUMP LIST

with their Production Train, Sump #, location, MCC #, or other means of isolation

Sump # 1 – (D & I Train)	S-8100 – North of T-8333	MCC 38
Sump # 2 – (D & I Train)	NO LONGER EXISTS	
Sump # 3 – (Det. Train)	S-8485 – North of T--8484	MCC 53C
Sump # 4 – (Det. Train)	S-8391 – West of Flash Pot	MCC 38
Sump # 5 – (Det. Train)	S-8392 - by In - Plant Separator	MCC 54D
Sump # 6 – (D & I Train)	S-8906 - Northeast of Special Chemical Bldg.	MCC 56A
Sump # 7 – (Det. Train)	S-9307 - Southeast corner of Filter Bldg. by T-5977	MCC53C
Sump # 8 – (Det. Train)	S-8393 – Southeast of T-5888	MCC 53C
Sump # 9 – (D & I Train)	DO NOT BLOCK IN – This sump is not on the Chemical Waste Header	
Sump # 10 – (U&E Train)	S-5222 Elect. & Air pump - by Solids Pit (K-5215)	MCC 46W
Sump # 11 – (U & E Train)	DO NOT BLOCK IN – This sump runs down to the Sulfite Unit / Deep Well	
Sump # 12 – (Det. Train)	NO LONGER EXISTS	
Sump # 13 – (Det. Train)	S-9413 - West of Central Control Room	MCC 58
Sump # 14 – (Det. Train)	S-9314 – West of T-8408	MCC 53
Sump # 15 – (D&I train)	S-9056 – Southwest of Special Chemicals	MCC 62B
S - 9718 – (Det. Train)	Pump P-9718 – at Amine Recovery Unit	MCC 62C
S - 9899 – (D & I Train)	Pumps P-9899 A/B – West of Bldg. 190 / PIB Unit	MCC 17C
Sump A – (U & E Train)	Pumps P-7612 A/B – Northwest T-7611	MCC 51B

#1 Source Control Box (Det. Train) - Pump P-9463 - North of Central Control Room MCC 55

In - Plant Separator *(Det. Train) - Air pump – Northeast of Central Control Room*

200 Source Control Box (Det. Train) - Air Pump – South of 200 Plant

Filter Bldg. Trench (Det. Train) - S-5600 – South of T-5647 - Isolate discharge from Chem. Waste ONLY

ATTACHMENT 3 (Cont.)

Leachate # 1 –(U&E Train) P-7691 - Northwest corner of Landfill C (lock out at sump)

Leachate # 2 – (U&E Train) P-7690 - Southwest corner of Landfill C (lock out at sump)

Leachate # 3 – (U&E Train) P-7693 - Northwest of Landfill A / B - by Gate #5 (lock out at sump)

Leachate # 4 – (U&E Train) P-7692 - South of Landfill A / B (lock out at sump)

T-7756 – (U&E Train) - Air pumps - at Tank Car Cleaning Facility near Gate 3

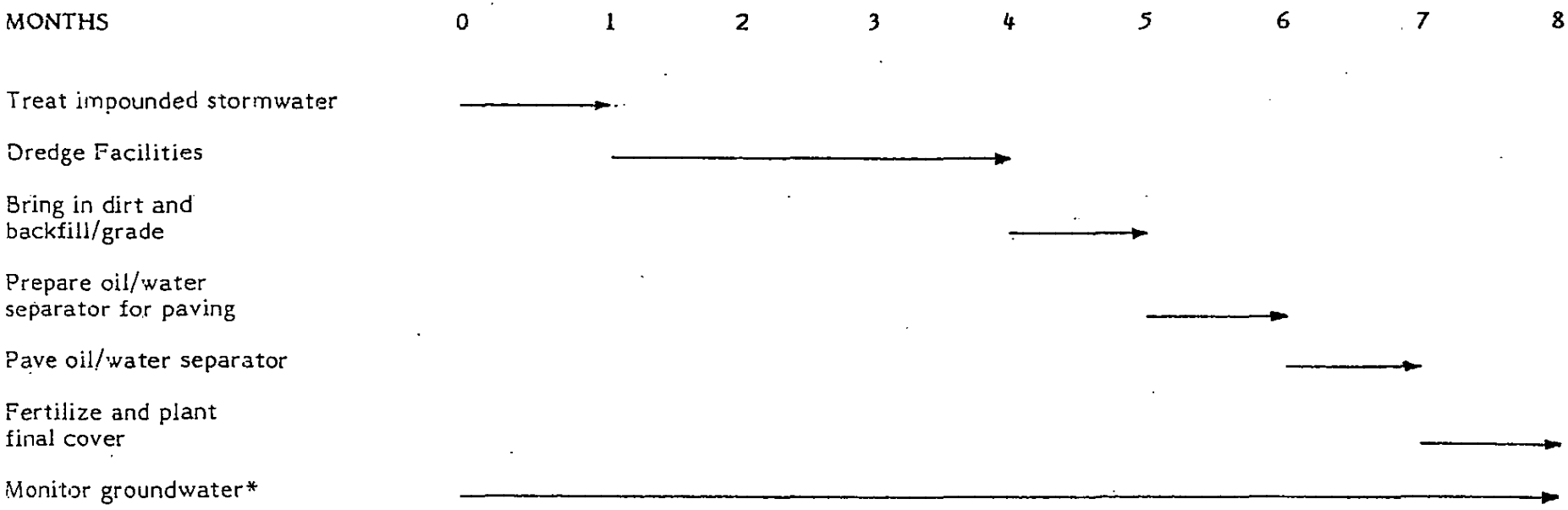
Cleaning Slab – (U&E Train) - Air Pump – Southeast of Biodisks (K-7685)

Wharf Sump – (B & S Train) - S-7450 – located at Wharf - Isolate discharge from Chemical Waste ONLY

Appendix V

Closure Schedule and Estimated Closure Cost

SOLID WASTE FACILITIES
CLOSURE SCHEDULE



*Continued through Post-Closure (if needed)

Closure Cost Estimate

2006
Storm Water Treatment System
Chevron Oronite Company, LLC
Oak Point Plant, Belle Chasse, Louisiana
Agency Interest NO. 1708 / PER 20050009
GD-075-1511 / P-0112-A-1

	Item	Quantity	Unit	Unit Price	Total
1	Mobilization/Demobilization	1	Each	$25,000	$25,000
2	Construction Stakeout/Survey	1	Lump Sum	$10,000	$10,000
3	Site Preparation	1	Lump Sum	$10,000	$10,000
4	Decontamination Pad	1	Lump Sum	$10,000	$10,000
5	Personnel Protective Equipment	1	Lump Sum	$5,000	$5,000
6	Sludge Excavation	10,750	Cubic Yards	$3	$32,250
7	Sludge Dewatering	10,750	Cubic Yards	$25	$268,750
8	Sludge Transportation	200	Loads	$310	$62,000
9	Sludge Disposal	4,025	Ton	$30	$120,750
10	Impacted Soil Excavation	9,500	Cubic Yards	$3	$28,500
11	Impacted Soil Transportation	700	Loads	$310	$217,000
12	Impacted Soil Disposal	14,250	Ton	$30	$427,500
13	Confirmation Sampling	1	Lump Sum	$22,880	$22,880
14	Plugging and Abandonment of Wells	7	Each	$1,500	$10,500
15	Removal of Pond Equioment	1	Lump Sum	$25,000	$25,000
16	Backfilling	85,620	Cubic Yards	$10	$856,200
17	Seeding/Fertilize	5	Acres	$1,500	$7,500
18	Construction Oversight/Administration	16	Weeks	$8,000	$128,000
19	Certification Report/Design/Pre Design Inv.	1	Lump Sum	$100,000	$100,000
				TOTAL	**$2,391,830**

Appendix W

Annual Report